

Aviation News

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Forecasts 110,000 Planes in 1944: T. P. Wright, director of the Aircraft Resources Control Office, and internationally known engineer, who in this issue of AVIATION NEWS presents a forecast of 1944 aircraft production and a retrospect of 1940-1943 air power preparation. Article on page 7.

Record Output Laid to Industrial Teamwork

Curtiss-Wright's President Vaughan credits cooperation all along line for peak of 86,000 warplanes in 1943.....Page 20

Flying Marines Spearhead Pacific Drive

Offensive operations against Japs expected to be carried out largely by squadrons with new Curtiss Helldivers.....Page 16

Airline Stocks Gain in '43; Aircrafts Off

Final prices show extension of advances by all air transport shares while manufacturing company equities decline further....Page 38

Convair to Act on Consairways Separation

Parent company directors reported planning move at next meeting on plan to divest firm of airline control.....Page 33

Ceilings Listed on Used Planes up to 500 hp.

Formula worked out by OPA is based on Oct. 1, 1941 value, depreciated at 8% a year up to 10 years.....Page 14

Arnold Puts AAF Strength at 2,385,000 Men

General cites tremendous expansion of aircraft production as vital factor in carrying war to enemy.....Page 15

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THE AVIATION NEWS

Washington Observer

OBSTACLE TO PLANE PRODUCTION—A recent experience of an airplane company with a subcontractor who before the war made a household appliance, and whose heart was still in the home, shows what the aircraft industry is up against. The airplane company made fine progress and soon it was to need assemblies the subcontractor had agreed to produce. The assembly failed to appear. A trouble shooter rushed to the small plant to find the work hadn't even started. Truth was that the little company was reading about plans of WFB to permit resumption of production of household appliances, and it was holding off until WFB decided. Within a few hours it changed its mind quickly. A telephone call from a high WFB official ordered the aircraft work finished at the little firm would be desired immediately for any kind of production. The aviation industry, expected to be one of the last to shut down war production, will find this kind of battle many times from now on.

ANOTHER BLOW FOR CAMOUFLAGE—Army Air Forces' recent decision to end the war point on many combat planes may be followed by another decision making camouflage of aircraft and other warbirds unnecessary. If so, the art will suffer a heavy blow. With introduction of infrared rays in aerial photography and elsewhere in warfare, camouflage usefulness dwindles.

GERMANY'S SECRET WEAPONS—Germany's frequent threats of secret weapons to cause alarm or alarm in some of the highest government officials in Washington. In fact, there is a note of genuine concern apparent here, if only comes to worst, the first use of gas, by the Allies, is considered not improbable.

ANOTHER SECRET WEAPON—Disclosure in England of the Allies' new secret weapon, using infra-red rays, which enables our bombers to hit vital targets despite cloud covers as thick as 25,000 feet, means that very many Japs hiding on such spots as the Aleutians, with the worst visibility in the world, will have showers of bombs on their heads, regardless of fog and rain. So far the importance of this invention in the North and Northwest Pacific has been ignored by commentators. It shouldn't be.

BRITISH VS. U. S. JET PRODUCTION—Beginning visitors from England, who have been

shown some of the best research that England has to offer, express the conviction that our ally is ahead of us in jet propulsion development, although War and Navy Dept. officials refuse to concede this. Even later than you are likely to prove the contrary point, however. As an interesting sidelight on the subject, each of our own two services has been quietly sparring with the other for several months to put out the first public announcement of recent work in this field.

SLUMP FOR PRIMARY TRAINERS—Probably the most serious outlook the aircraft industry will see in 1944, in plane types, will be in primary trainers, whose production will drop to a mere trickle. Close to 3,000 PT's were delivered in 1943.

DOUGLAS DENIES SUMMERS—Fair and damaging rumors of wholesale layoffs become so widespread and so threatening to production that the Douglas Company feared it necessary to issue a formal denial, stating their case with the statement that the Douglas backlog is greater than at any time in the company's history. Donald Douglas formerly asked Charles E. Wilson, WFB executive vice-president, to authorize and initiate, through the Division of Labor Production of WFB, an inquiry into the situation of the erroneous and damaging reports.

CONGRESS RETURNS—There are many trouble-making controversies in the Congressional deer-step as the lawmakers return this



Conquer in British battle dress.

week, foremost among them being the new tax bill on which there is considerable uncertainty in the minds of some members about the re-negotiation amendments. It is not impossible that a presidential veto might follow if the changes made by the Senate Finance Committee are approved. There is some talk of attempts to compromise with the administration on renegot-

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CONTENTS	PAGE
Washington Observer	3
Headline News Section	7
As We See It	10
Accrual Production	20
Therapies	21
Financial	28
Personnel	40
Subsidiary	4

United Aircraft Corp.	5, 11,
North American Aviation Corp.	10,
Boeing Aircraft Corp.	11,
Boeing	13, 16, 18, 19,
Boeing	27, 28, 29,
Boeing	29,
Boeing	31,
Boeing	31,

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Aircraft & Detail Equipment Co.	39
Araguap	57
Kyle Aircraft Corp.	6
Cleveland Pneumatic Tool Co. 1st Cover	
Clyford Manufacturing Co.	76
Joe Aircraft Corp.	23
General Electric Co. 4th Cover	
Goodrich Co., The E. F.	17
Gulf Oil Corp.	19
Hunts & Kramden, Ltd.	22
Heater Co.	4, 36
McBride Products Co.	12
McQuay-Norris Mfg. Co. 2nd Cover	
Seaton Bros.	18
Timber Structures, Inc.	31

tation, although many members remain firm in their belief that changes are necessary.

Sparkman, of Alabama, was quoted by a few newspapers as saying a giant new bomber bigger than the B-29 is being produced and will soon be in large-scale production. This was news to the aircraft industry. The Congressman says he was talking about the single Douglas B-18 of some years back, which is larger than the B-29, and that a reporter got confused by all the numbers.

Congressman explained the erroneous quotation, most industry observers in Washington thought he referred to the glass Douglas has for its big DC-7. Informed officials here say the company believes it can turn out the first big airliner of the series a year after it gets approval for commercial production. Other figures indicate a maximum 4,800-unit range, accommodations for about 86-day passengers or 40 berths, and a gross take-off weight of about 350,000 pounds.

Minister Cavanaugh still runs the day it issued the license, entailing a advertising surplus production in color and snappy sales talk. The Army has found it necessary to state publicly that about 15 percent of the Air Force property disposed of in October and November went into civilian channels. It was a good line but it worried too many people. "I don't know what the military mind expects from at Memphis, Tenn., where the hired experts from the Army and Navy, the house, who turned on their sales appeal to the queen's taste, even introducing less leaders almost extinct in civilian life. "The catalog recently went over big," said a Ministerial officer to "Aviation News." It was of created the wrong impression." The very first page showed a nice roll of garden hose, listing several sizes; tanks, compressors, fuel pump, movie projectors, and other items. The last page of the catalog a variety of parts and gadgets were offered in 24 pages of tempting drawings and color.

layoff of 1,000 workers at the Euclid, Ohio, plant of Thompson Aircraft Products Co., and a smaller number at the main plant in Cleveland. Army officers confirmed the company statement that the action resulted from "sudden sharp cutbacks in military aircraft valves and parts orders." The cutbacks were in orders for valves and parts for certain types of planes which will go almost out of production early in 1964. Army refused to say what types, but it is common

they meant trainers. They said that even if aircraft plants affected could retaliate for other plant types or other war products, they would not need the Thompson products referred to. This is only the beginning of cutbacks which will increasingly affect nonaeratical planes, parts, and, possibly in 1944, combat planes.

Many planes in flight entirely on radial air-cooled engines for its aircraft—at least for this war—having excelled its contract with Lycoming for an engine intended to power a new type fighter aircraft. The Navy had been so impressed by the enclosed model on the question of liquid-cooled engines as has sometimes been charged, but simply that the Grumman "Hellcat" and the Vought "Corsair" proved such splendid performers and their production on both types was so rapid that the Navy had not been so concerned on the other fighter which had not progressed to a point where the Navy believed additional experimentation was worth while. The liquid-cooled engine was of such a design that it could be used only in the present fighter aircraft. At the time it was designed, it was desirable at this time, it became necessary to raise the engine coolant.

SIDEL - After President Roosevelt's message closes Congress, Washington and the industry were hopeful some policy would evolve on re-conversion and contract termination. Bernard Baruch and his aide, John Harbock, are said to have outlined their report on termination and conversion. The report is said to be somewhat optimistic currently, and subject to change without notice, is that Baruch is in the driver's seat on the power industry program, with Donald Nelson and Charles E. Wilson awaiting clarification and development before making their next moves. Meanwhile, observers point out that the Treasury Procurement division may wind up with a large slice of the termination and reconversion job, being the only agency underlined in the report to be directly involved, purchased, and retained by the government.

been revealed that last spring a fleet of Curtiss C-45 "Commandos" of the Air Transport Command made the longest mass transport flight on record by delivering 84 tons of valuable cargo to an advanced Army base after a flight of 34,000 miles, more than halfway around the world. The vanguard arrived four and one-half days after leaving the United States; the entire fleet completed the flight in approximately seven and one-half days.



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Aviation News

McGraw-Hill Publishing Co., Inc.

JANUARY 18, 1944

T. P. Wright Traces Plane Program; Forecasts 110,000 Aircraft in 1944

Wants aviation industry that it must meet accelerated program end year and says we dare not adopt philosophy that the war is nearly over; December output of 8,802 planes raises year's total to 85,996. The 1944 plane valuation will be 25 billion dollars

By T. P. WRIGHT

Director, Aircraft Resources Control Office

The war is not over! We still have a long way to go! More aircraft of larger and larger size are urgently needed. There is little prospect that there can be substantial recession in the production of aviation goods during this year. In fact, too much agitation in that direction—present-day post-war planning—may very well weaken the war. Although one can be completely optimistic as to our aircraft production program, both from the standpoint of past accomplishments and of future prospects, and, although one can be similarly optimistic as to the ultimately successful outcome of the war, I nevertheless believe there is justification for extending that optimism to an early termination of hostilities over in Europe.

Only the assurance of some unprejudiced, psychological factor can bring that about. Just as in the early stages there was no substantial war time, so really getting under way in our aircraft program, suddenly now there is a sense of excitement, the tremendous military situation which confronts us, and in accelerating the tremendous advantage-of-position which the enemy holds. Aside from the stirring effect and telling tales which the Red Army is inflicting on the Germans Wehrmacht, we as yet have little opportunity to strike enemy from the air. In the case of Japan, the situation is "even more so." Hence the vital necessity for the continuation of our air program to higher and higher goals.

BACKGROUND

As stated in July, 1940—for the sake of background, I will recall the two events I came to Washington early in June, 1940. The National Defense Advisory Commission was just being organized, with Gen. Kenneth at its head, as it is expected to consider production in the week of July 1940,

as a base from which to judge the progress that has subsequently been made. The increase during the first half of 1940 was substantial in percentage, the year having started with January production of 2,500 airplanes. However, that increase, and therefore the foundation of our war effort, must be credited to the early orders of the British and French, which made possible the establishment of new new facilities and some production in acceleration on the part of the industry. In July, 1940, there were delivered 522 airplanes, of which approximately 80 percent were training planes.

Working with the National Defense Advisory Commission, the first job of the Services during the summer of 1940 was to select the types that were suitably established in quantity putting them into production, and then to build up a program around them. This stage, plus the accompanying job of selecting the manufacturers that were

competent to carry out the expansion program, took up most of the remainder of 1940. Production expansion was started and were maintained at an ever increasing rate, greatly stimulated during 1942 by "Pearl Harbor" and reaching a peak early in 1943. However, even now, there are some uncompleted decisions necessary to attain our 1944 objectives.

Both the National Defense and the Materials Administration took sound view of our first bottlenecks, as the tremendous acceleration of the facilities program increased the production of the old line aircraft companies many hundreds of percent over their past peak output. By late 1943, however, the real bottleneck had been eliminated and materials came to the front as the major problem requiring solution both in its shortage and balanced distribution. The material shortage was bad during the last third of 1942 and the first half of 1943. It got all to a good start because of the release on a priority system. It was not until the third quarter of 1943 signs of improvement were at hand, and by the fourth quarter the bottleneck in all critical materials was definitely broken.

However—no sooner had the material situation appeared to be in hand, than the manpower problem

Highlights of Mr. Wright's Report

- We build 107,000 airplanes from July, 1940, through 1943.
- Output in 1943 averaged 122 percent as against last January to Dec. 31.
- We have overcome a 3-to-1 production lead by Germany in 1936 to assume a 34-to-1 lead over the Nazis at the end of 1943.
- Average airplane weight increased from 4,000 pounds to 6,000 pounds from January to December, 1943.
- horsepower output rose from 25,000,000 in January to over 28,500,000 in December, or 67 percent.
- Heavy bomber output is now well over 1,300 a month, and rising.
- Our airframe output is now almost 60 percent in 1943.

- Allied production output is now more than three times that of the Axis.
- The year we shall attain a rate of 10,000 planes a month and will exceed a weight output of airplanes as high as 10,000,000 pounds per month, with the program still increasing in December.
- Our new super-bomber will reach its top monthly output.
- Our large crop planes and long-range fighters will continue to increase by big percentages each month.
- The aircraft program will move from about a fifth of the materials used in 1940 to a third in 1944.
- The 1944 output will be valued at 25 billion dollars.

laborer predominant. Labor was a real bottleneck during the last half of 1943. There again, vigorous effort was made to get at the root causes of the trouble, and by the close of the year the situation had stabilized, and progress, for the most part, were "back on the beam." During the last quarter of 1943 great emphasis has been placed on improvement of manpower utilization, accompanied by better distribution of labor, by more liberal deferment programs, by reduction in man-hour rates, by better community action to help out local services, and by general build-up of morale. All combined, they were effective in bringing about the present relatively satisfactory manpower conditions. This condition is threatened, however, by an oncoming bottleneck caused mostly by threats of strikes in several vital war industries, only averted so far by appeasement, a policy just as unavailing as it is in international affairs. To the relief, the solution is National Service legislation which places on all citizens an equal legal and moral duty to serve in the nation's effort where best fitted.

137,000 Planes.—At the outset, I mentioned July, 1940, with an acceptance of 172 airplanes as a good starting point for considering statistically how much has been accomplished. From the first of July, 1940, through December 31, 1943, we have built 137,000 military airplanes. This represents, in numbers of planes produced, a rate of increase each month (compounded)

7 Firms Make Props

Seven companies now are producing proposals for the military aircraft program, according to Washington officials. These are: Aeroproducts Division of General Motors Corp., Cessna Propellers, Ltd., Curtiss Propeller Division of Curtiss-Wright Corp., Frigidera Division of GMC, Hamilton Standard Propellers, United Aircraft Corp., Nash Kelvinside, and Remington Rand.

of greater than 3 percent. This means a percentage of production increase for December, 1943, compared to July, 1940, of over 1,430. Not of course that the true measure of production is not the true measure of production, which should be weight of aircraft supplied. Because of the increase in average airplane unit weight, the above percentage figures in terms of number of output are more than 3 percent per month. The increase between months at the extreme of the period mentioned was 3,500 percent. In achieving this phenomenal rate, employees engaged in the aircraft industry have gone up 3,200 percent.

Production figures such as these appear so astronomical that one often feels the probably natural question

"where are all these airplanes?" Properly to answer this question, it is well to go back three or four years, and explain the stages of use to which it was necessary to put them before production at home could be reduced sufficiently in corresponding increased activity at the front.

Where the Planes Went.—First we had our first planes sent to Europe. They were "holding the fort" during the early stages of the war. This substantial proportion of our deliveries went out to England. Then came the planes under lease-lend. The numbers are now greater than formerly, though the proportion is less. Then we had our own training program to get our very and to accelerate. That was a herculean task as anyone will at once realize when flying over the country. It takes the majority of training fields dotting the landscape. This phase includes not only the primary and advanced training stages but also the operational training units in which tactical planes, fully equipped, are used.

In addition, there is a long pay-line to the rear, the modification centers for needed changes, delivery center activities, actual transport to advanced bases, squadron detachments and, finally, combat. The latter has a hydraulic brake system, so long as a bubble of no action in the line persists. A bubble of inaction merely causes the fluid to seep up the air pipe, and to contract the brake handle at the rear. So any void in the pipeline between factory and front-line has to be filled by airplanes before factory deliveries are felt immediately at the front. Now we have the pipe-like filled and our production reported each month at home is felt by our outfit or less. From-line increase in terms of accumulated numbers of planes to make possible an accumulation of activity and to fill squadrons depleted by losses while carrying on against the enemy every hour of every day.

1940 ORGANIZATION

Let us now consider the calendar year 1940, still starting with organization in Washington. It was toward the end of 1940 that the Aircraft Production Board was formed. That was a tremendous step forward, as it brought representatives of the government agencies most vitally interested in production and most responsible for carrying out the air program into one group. This Board, under the able leadership of Mr. C. E. Wilson and consisting of four other members: Lt. Gen. William S. Kauder, Maj. Gen. G. P. Nichols, Rear Admiral E. M. Puse, and the writer, has brought about complete cooperation between the agencies represented, and has attacked aggressively and, I believe, successfully every problem, large and small that has come to its attention. It has met regularly every Monday since its formation and has dealt with problems of materials, manpower, labor

utilization, the achievement of balances between competing and non-competing aircraft, and numerous others. No one and only man has been to make available all necessary production resources and materials, and manpower, so that the aircraft industry could accelerate its production to the extent necessary to attain our objectives.

OBJECTIVE

Early in 1942 the President established objectives for the airplane industry which made necessary an all-out expansion of facilities and which, it is believed, set our sights substantially higher than we had ever had before. It was a period of biting. Nevertheless, during that period, the military services at no time permitted their rights to drop down these goals. Moreover, after a year and a half, it became increasingly apparent that continuing too high a goal might actually result in a qualitative number of airplanes delivered because of resulting imbalances in facilities and components. Therefore, in September, 1943, the Aircraft Production Board established a subcommittee which has been instrumental in bringing about the very rapid increase in production which we are now enjoying. In 1943, to 3% in 1943, it shows. This preponderance in production makes possible the superiority in the air as well as on the ground, the most important offensive weapon we have, the four-engine heavy bomber, has

Heavy Bombers

A slump in production in the last few days of December, due to Christmas and New Year's, probably cut the nation's war effort 300 combat planes.

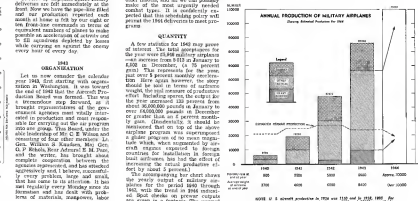
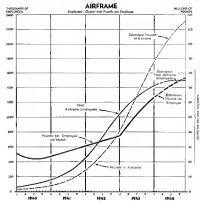
All indications up to Dec. 30 pointed to a new monthly record of approximately 8,000 planes, government officials said. Output thereafter dropped off sharply and the December total was actually about 500 fewer than expected.

Production of heavy bombers, and of first line fighters, however, did not show this decline. The month's heavy bomber figure set a new record.

The average airplane unit weight increased from about 6,000 pounds in January to 8,000 pounds in December. This increase is brought about by the increase in the proportion of training planes used by the increase in percentage of heavy bombers, accompanied by an upward trend in size in all types. Actually, present bomber output is only about 15 percent of the total, which, allowing for small losses types of planes, means that combat and transport planes together are now approximately 85 percent of the total output, with combat alone at 75 percent. Our other measure of output is the total horsepower of engines delivered. This figure rose from approximately 31,000,000 hp in January, 1943, to over 35,000,000 hp in December, a 47 percent increase.

HEAVY BOMBERS

One interesting story which should be told is that of the heavy bomber program. It was on May 6, 1942, that the first directive was issued from the White House, calling for an output of 500 heavy bombers per month—a figure that necessitated a production level during the year, this objective was raised to 1,000 per month, to be reached by June 1944. This determination to "beat the drum" for the most important offensive weapon we have, the four-engine heavy bomber, has



NOTE: U. S. aircraft production in 1943 was 115,000 and in 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 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increased the more number of planes that might have been attained otherwise, but as the objective is to win the war and not to get into a numbers racket, the proper course has undoubtedly been followed and will continue.

QUALITY

Concomitant with the achievement of the quality increases mentioned above, has been a steady improvement in quality. Throughout the program, production has been sacrificed where necessary in order to introduce needed changes discovered from battle usage. For example, if from combat experience a valuable spot is found in a bomber, immediate steps have been taken to protect that particular spot by additional armament or armor. It is not easy to break into production and make such changes, but where they are necessary from the standpoint of safety or for gaining a substantial military advantage, they have always been made and, under such conditions, let it be said, they always will and should be made. As our output has been increased, our losses have accordingly been rightly decreased, that the combat effectiveness

of the equipment be moved to other words, as one officer stated, "At the outset, back in 1941, they were glad to get anything that we could turn out—now they are more choosy."

Transfer as changes of types are necessitated the emphasis must now be placed on quality of greater range and greater fire power with as much accompanying performance increase as possible. This means detailed changes in existing types in many cases, but in many others it means the need for taking out of production those types which have become semi-obsolete and of introducing new and better equipment. We may therefore look forward to program changes based on the introduction of new types from time to time.

However, it must not be assumed from this that the types we are now building and using in combat are in any way inferior in many respects to the calculations made early in December by Peter Maass, an English journalist, who had access to vital secret of our battle record. This fall, and has had actual contact with our fighting squadrons at the front, are most interesting. His general plans American friends at the

head in 15 out of 23 categories of fighting planes listed; the more production figures it is recalled that we did not get into the war effort until two or three years after our Allies, and seven or eight years after our enemies had started their air expansion.

EFFICIENCY

A word should be said about production efficiency, particularly from the standpoint of more effective utilization of manpower. In the middle of 1943, the Army Research Center Office prepared an Index of Efficiency to measure this factor in terms of pounds-of-output per-employee per-day, corrected to a constant consumption of unit weight and production mix. Monthly reports have been issued since, so that an impression can now be made of the industry has done in improving its efficiency. During this six months period the index has risen from 4.2 to 4.6, an increase of 10 percent. At the same time, this might not be considered a very large improvement. However, it must be appreciated that each one month's improvement represents the saving of 30,000 people required for producing the airplanes delivered. This means that for a five-month increase, which has actually occurred in the six-months period, there has been an equivalent of 150,000 persons saved, or, in other words, that this increase in efficiency has been accomplished, there would have been necessary an additional 150,000 people in the airplane industry. Because of the general manpower shortage which existed during that period, that number would not have been available and therefore our program would not have been so well run. Actually, due to the overall aircraft program (which includes many low production types not reported in the index analysis) the improvement during the year ending in output-per-employee has been almost 40 percent. We fully anticipate that this rate of increase in efficiency improvements will continue through 1944, so that the overall manpower drive in the air program will be relatively small. This, in terms of output, employees and man, enhancing efficiency (output per employee) is shown in the accompanying graph.

THE WAR

It is now appropriate to see where the United States stands in the war. Our superiority in the air has been established on every front. This has been made possible to an important extent by the tremendous drive in the production program in this country. Although we are not entirely certain of the production of some of our Allies and of our enemies, it can be fairly stated that we produce more than the Axis in nearly every category. Even less the Axis, and even less that the output of the United States alone is greater than 7 to 1 compared to that of the Axis, and greater than all the rest of the world combined.

The present bombing of Germany (even, as Gen. Arnold stated, "to be on a 'bomb' as well as a 'bomber'"), and the future bombing of Japan will prove how much we have been in planning with great emphasis on aircraft output, as striking from the air is the one way we can get at our enemies and make less costly the ultimate conquest. The less accurate, which various publications have from time to time mentioned, have continued to prove the superiority of our capabilities by showing losses of our enemies compared to our own, ranging from 5 to 3 to 1 in the European Theatre, to 5 to 8 to 1 in the Far East.

1944

The statistics listed above will now be considered from the standpoint of a 1944 forecast. Plans of all, it must be made absolutely clear that there is no outlook in the air program—quite the contrary. There will be more airplanes in numbers during 1944, but in weight of output, particularly, the upward trend will continue unabated. It is anticipated that during this year we will have approximately 100,000 airplanes per month and will exceed a weight output of airplanes and surplus of 120,000,000 pounds per month, with the average unit weight of 1,200 pounds. The average unit weight of equipment will also continue to increase, reaching possibly 1600 pounds each for airplane weight by the end of the year (It was 1,300 pounds in 1943). Our heavy bomber program will continue to accelerate and our new super bombers which Gen. Arnold recently discussed will reach large monthly output. Our program of large cargo planes will continue to increase by big percentages each month, as will also our long range fighters. It is on the production of these heaviest types in the combat and cargo classes that full emphasis will be laid.

It is interesting to note that, in dollar value, the part played by aircraft in the national production program will move from about one-fifth of the total in 1943 to one-third of the total in 1944. Twenty-five billion dollars worth of airplanes will be delivered this year!

Accompanying the increased production output during the year will be an increase in manufacturing effi-



HELICOPTER MOCKUP

Working from blueprints under an arrangement with Sikorsky Aircraft Division of United Aircraft Corp., workers at Nash-Kelvaner plant in the Detroit area are putting together a mockup nacelle for use in testing their contract with the Army for helicopter production. The rotary wing ship, the H-5, is a military type.

cy represented by possibly a 26 percent gain in pounds-of-output per-employee per month.

To sum up, we are going to build more airplanes, bigger airplanes, and better airplanes—the planes that will win the war.

Conclusion. Again, however, I must close with a word of warning. The tremendous job that has been accomplished during the past year, together with the tremendous task that will be accomplished in 1944, does not mean that we can relax our efforts, or that the war is now won. We have a hard, bitter and bloody fight ahead of us. It is absolutely essential that the people of our country in general, and of the aircraft industry in particular, vigorously approve the fact that, with complete understanding of the present challenge of the accelerated aircraft production program for 1944, and with a sustained determination, make that scheduled output available to the squadron on our many fighting fronts.

I will close with a thought-provoking question taken from an advertisement which I recently ran across. It showed a picture of a workman with his sleeves rolled up and a determined look on his face as he bent over his task. He says, "For me, this war will be over when my bay comes back home—set when we take another enemy island outpost!"

New Fastener

Elastic Stop Nut Corp. has acquired world rights to a new lightweight fastener of rugged construction, particularly suited for engine coverings. The spring-lock device

was invented by Dr. E. L. Mack, and perfected by American Parts Development Corp. under direction of C. C. Hagerstedt. Tests by the Army at Wright Field and by the Navy Bureau of Aeronautics show it merits their endorsement.

Delta Air Lines Doubles 1942 Mark

Asided by Army's return last August of a DC-3, Delta Air Lines ran up 1943 totals for air mail and express more than double those for 1942.

Mail pound miles were 1,268,053, a 93% compared with 637,894,294, an increase of 123.2 percent. Air express was 33,852,558 pound miles, against 13,667,776 for 1942, an increase of 39.8 percent.

Planes Used for Cargo.—R. Stanley Webber, general traffic manager, said the increased demand for on frequent occasions planes had to fly with empty seats in effort to load and cargo loads. At other times the seats were used for storing over-loaded cargo.

The company's revenue passenger miles in 1943 reached a new high of 43,506,967, or 39.4 percent above 1942's 33,357,997. Average load factor for the system was 60.75, or against 71.9 for 1942. Passengers increased 11.4 percent, from 166,336 to 184,146. Average passenger load factor, however, was 60.75, or against 71.9 for 1942. Passengers increased 11.4 percent, from 166,336 to 184,146. Average passenger load factor, however, was 60.75, or against 71.9 for 1942.



"DUTCH" KINDELBERGER HONORED

J. B. "Dutch" Kindelberger, president of North American Aviation, was honored by producers of all West Coast aircraft companies at a luncheon marking his 25th year in the aviation industry. Photograph above, taken in 1926, shows Kindelberger, right, standing, with J. E. Spengler, then president for Douglas, now a Douglas factory manager. Kindelberger was formerly vice-president of Douglas.



Pogue Renamed

L. Welch Pogue and Edward Warner have been redesignated by the President as chairmen and vice-chairman, respectively of the Civil Aeronautics Board. Pogue is starting his third year chairman. Warner is replacing his second consecutive year, but was vice-chairman previously. The two men are the first members of their family at the first of each year.

24,566 Airplanes Built in 1943 By East Coast Members of AWPC

Companies producing at rate of \$8,000,000 a day at close of year set all-time dollar volume record of \$2,225,000,000.

A total of 24,566 airplanes, weighing with spares, an excess of 108 million pounds—not including engines, propellers or parts—was delivered by member companies of the Aircraft War Production Council, East Coast, during 1943.

Production in dollar volume was approximately \$7,750,000,000 a day at the close of the year. The member companies completed an all-time record of dollar volume at the rate of \$6,000,000 a day last year, the companies were producing at the rate of \$8,000,000 a day at the close of the year.

► **Monthly Figures**—While the majority of airplanes turned out were Army and Navy fighters, many were long range fighter planes now equipping four-engine bombers over the heart of Nazi Europe. The Council members also built hundreds of medium bombers, torpedo and dive bombers, Navy patrol bombers, cargo and transport planes and primary and advanced trainers.

During the last four months of

1943, the companies delivered an estimated 77½ million pounds of surplus and spare parts as compared with 64,257,668 pounds during all of 1942. Similarly, more airplanes were built by these aircraft companies from Aug. 13, 1943, to the end of the year than in the 12 months of the previous year.

► **Records**—Member companies include Avianco Corp., Bell Aircraft, Brewster Aeronautical; Curtiss-Wright; Eastern Aircraft Division, General Motors, Fairchild Engine and Airplane Corp., Glenn L. Martin Co. and Republic Aviation. The engineering, production, and conservation and reclamation committees of the Council, exceeded all records in number of information exchanges during the last four months, those in the engineering committee alone numbering about 800.

► **Key Personnel Needed**—Surveys made on manpower and labor utilization express the need for key personnel. The utilization survey is

being made available to all war production manufacturers, regardless of whether they are council members.

The Council Board of Directors noted General Arnold's report, which said 143,599 airplanes must be built in the next 18 months.

► **Critics Need of Speed-Up**—L. C. Good, head of Eastern Aircraft Division, named president of the Council for the next four months, acknowledged increases made thus far, but warned that if current percentages prevail, the rate of increase must be stepped up even more.

"Our part of the job in 15 months will mean building approximately 63,949 airplanes weighing 158,569 tons," Good said. "That means we will have to do in the next 15 months about what we have done in the last two years."

NWLB Shift Creates New Plane Wage Panel

Summary of federal action includes Goodfear—DPC committee.

National War Labor Board's announcement of revision of the jurisdiction of the National Airplane Panel in effect creates for the aircraft industry a specialized group to pass on wage problems, and centralizes the authority in a national group located in Washington.

Previously disputes either filed on the West Coast area were taken up by Regional War Labor Boards and recommendations sent to the National Board for final decision. This resulted in frequent delays.

► **Recommendations**—The panel of aircraft wage specialists will recommend only to the Board, but decisions will be carried out more uniformly throughout the country.

The West Coast Aircraft Committee will continue to function and will make all recommendations to the Panel for presentation to the Board. The Committee was set up last April to handle wage disputes in that area.

► **Membership**—Thomas E. Kist is chairman of the panel and members are Gerry Cotton, AFL, Bell Aircraft, CIO, John Meade of Bell Aircraft Corp., and Charles R. Hooker, Jr., of Rustless Iron and Steel Corp.

Jurisdiction is limited to wage or salary issues in major dispute and major voluntary cases, which substantially affect either the general wage structure of the aircraft companies or the wage stabilization policy of the aircraft industry.

► **Major Cases Handled**—Only major cases involving those companies in



NEW POWERED GLIDER

Following tests last summer with Franklin 120-hp engines on the Waco CG-4A glider, Army Air Forces has put one other model in operation. On left is the PG-2, with Franklin power, while on right is the new PG-2, with two 175-hp Ranger engines. The latter cruises about 100 mph, according to Waco officials, and



to be used as an air taxi between Wright Field and the glider base at Wilmington, Ohio. Each engine assembly is a complete unit with propeller, gas and oil tanks, which can be mounted or dismounted in about an hour. Further development of powered gliders by the AAF is not now anticipated.

the industry whose names appear on a list to be approved by the Board are to be made available to the Regional War Labor Boards and to the National Board's New Case Committee.

Experts say the result of this panel may be to raise salaries in many plants, since all decisions will have an overall floor and wages will be equalized throughout the country.

A summary of other federal actions last week follows:

► **Appointments**—Recent appointments to the National War Labor Board include Lloyd K. Garrison, executive director and general counsel to be an alternate public member, to sit as a voting member when called on by the Board.

Frederic J. Ballou, assistant director of the Fifth Regional Board at Cleveland, became deputy executive director, and Thomas L. Nixie, vice-chairman of the Second Regional Board in New York, was appointed executive director.

► **Petroleum Administration for War** expects the 23 additional 300-horsepower gasoline plants planned for 1944 construction to be completed early. Already the engineering is three-fourths complete and the purchasing of building materials more than 64 percent completed.

There are 163 plants throughout the country now contributing to the manufacture of aviation gasoline, and although 164-octane is still light, PAW expects to close the program with the completion of the 22 new plants.

► **Anti-Friction Bearings**—WPA announced Preference Order R-16 to define more strictly the type of prime or subcontractor in whom surplus anti-friction bearings may be sold. Only a prime or subcontractor who will incorporate the bearings into a product he manufactures or will deliver them as spare bearings with such a product are included in the amendment.

► **DPC Loan**—Goodfear Aircraft Corp. of Akron, Ohio, has secured a contract with the Defense Plant Corp. to provide additional equipment at a plant in Summit County, Ohio, at a cost of approximately \$120,000, resulting in an overall commitment of about \$12,000,000.

► **AAF Specialized Depot** and the Government Purchased Equipment Depot at the Maywood Society Depot, Los Angeles, have received an initial authorization of \$2,500,000 to provide 1,300,000 square feet of covered storage space, auxiliary buildings and utilities.

► **Petroleum Administration for War** expects the 23 additional 300-horsepower gasoline plants planned for 1944 construction to be completed early. Already the engineering is three-fourths complete and the purchasing of building materials more than 64 percent completed.

There are 163 plants throughout the country now contributing to the manufacture of aviation gasoline, and although 164-octane is still light, PAW expects to close the program with the completion of the 22 new plants.

WMC Chairman Paul V. McNulty announced that nearly all the 34,387

Krug's WPB Power Raised by Order

Officials use no effect on aircraft production program.

Power hereafter vested only in WPB Chairman Donald M. Nelson and Charles E. Wilson, executive vice-chairman, have been extended to A. A. Krug, program vice-chairman under an amendment to War Production Board Regulation 1.

The amendment has no particular significance, as far as the aviation industry is concerned, according to Krug's executive assistant, who said it merely gives Krug the power to sign directives to other government agencies, including officials of the WPB in its regional and district offices, officials of the Aircraft Resources Control Office, or the Aircraft Scheduling Unit, all operating areas of WPB.

► **Equal Authority**—Thus, Krug has equal authority with Nelson and Wilson in those and all other matters assigned to the War Production Board. The aircraft production program was especially assigned to Wilson by the President, and has been Wilson's prerogative without interference even from Nelson. He is expected to retain full control of the program as long as he remains with WPB.



BIG RYAN SPAN:

Believed to be the longest ever built are the 206-foot span clear wood trusses in Ryan Aeronautical Company's final assembly building at San Diego. Rated as unique in the construction field, the big wooden "beam-bridge" facilitated construction, with minimum use of steel, of a single-room building 178 ft. long, 263 ft. wide, and 35 ft. high beneath the trusses.

COMMENTARY

Flying Leathernecks Spearhead Allied Drive in South Pacific

Offensive operations by Marines eventually may be carried out by squadrons equipped with new Curtiss *Hellcat*s.

The Marines have landed. The situation is well in hand. In the campaign to slough off some of the services of the Nipponese occupy the traditional part played by the landing Marines on Guadalcanal, the Russell Islands, Munda, Bougainville is well known. What is not so well understood is the vital part which has been played by the flying Marines.

After more than 18 months of almost unprecedented triumphs in the air, it is still rare to hear the Marine boys properly credited in its own official version.

"From the halls of Menikoff, to the shores of Tropic, We fight our nation's battles, In the air, on land and sea."

Marine Aviation Growing — The Marine organization is in itself ideally adapted to the development of "combined operations," one of the outstanding features of World War II. The Marines are soldiers, sailors, aviators, trained as specialists in landing operations. As a matter of law, the Marine Corps must make up 30 percent of the total strength of the Navy.

The Marine Air Arm is still small but under the present expansion program is expected to equal approximately 30 percent or more of the total Marine Corps.

Marine Fighter Squadrons — In the early months of the Pacific fighting, the Flying Leathernecks operated from three landing fields carrier-type Grumman Wildcats (F4F). Although out-climbed and out-manuevered by the Jap Navy Zero (Zeke), the ruggedness and fire-power of this ship enabled it to turn in an astonishing performance against the Nipponese flyers. More than any other single factor (unless it be the no less heroic air transport service of the Douglas RAD's), the Wildcats saved Guadalcanal. In those desperate days, a handful of P-40's

(export version of the *Aircobra*) also proved their mettle, frequently being the only fighters which the Marines or Army pilots could get to take off from the deep mud of Henderson Field after a tropical rainstorm.

The "Corsair" Comes to Bat — Early in 1943, Marine flyers got their hands on the new Vought Corsair (F4U), also a carrier-based type but equally effective from landing strips. This ship gave them the added speed, ceiling and climb they needed, and the improved Jap fighters (Zekes and the improved Jap fighters) Jemp and Tons have been tops. More recently, some Marine squadrons have been outfitted with the Grumman Hellcat (F6F), a fighter in the same league as the Corsair,

and if anything a bit more maneuverable.

Dropping the Eggs and Tin Fish — For offensive operations there are a few Marine squadrons equipped with Douglas Devastator dive-bombers (SBD's) and Grumman Avenger torpedo bombers (TBF's). It is not unlikely, as in the case of the Navy, that eventually the dive-bombing (pioneered by the Marines at Iliad in 1919 and perfected by them in Nicaragua in 1937) will be largely carried out by the new Curtiss Hellcat (SRHC), as this ship has greater speed, fire-power, range and bomb-load than the Devastator.

Central Solomons Push — All through last June the air activity over Jap outposts north of Guadalcanal was stepped up in preparation for the drive which began on June 28. While Marine and Army ground troops landed at several points on New Georgia, the combined team of Army-Navy-Marine flyers kept the skies clear of enemy aircraft and dropped hundreds of tons accurately on several objectives.

The important air base at Munda was neutralized within a few days and captured within five weeks. Landings on Treasury Island, Bougainville and New Britain have followed in succession, and Rabaul seems nearly ripe for the final drive. No wonder Japs have reported that the situation looks serious, with air and naval superiority now on the other foot. —NAMES



NEW EMBLEM FOR FLYING TIGERS:

The Flying Tigers, legendary nickname of the American Volunteer Group which wrote air history in China before the United States entered the war, has been adopted as the official emblem of the AVG's successor, The Flying Tigers of the U. S. Army 14th Air Force, in China. The emblem is shown as it was presented to Maj. Gen. Claire Chennault, commanding general of the 14th, center, by Sergt. Howard Arneson, its designer, right, and Sergt. Robert Wenzel. (See p. 12)



SO OUR FLIERS WILL NOT GO DOWN IN FLAMES

The battle was over . . . the plane was home . . . but its wings looked like blackwork. Nest rows of holes yawned along them, stitched by the Zero's gunfire. Yet the pilot hopped overboard and filed his report: "One more" had vanished in a sheet of flame; "two possibilities" had dropped with fuel streaming through riddled wings.

Chalk up one more lopsided victory . . . for more pilot saved by bullet-sealing fuel cells. The Zero didn't have them. His plane did. Without them he might have been a "flamer" too. Instead, he was telling how a Zero disintegrates when a burst strikes home, and three Japs

were wherever Japs go after dying for the Emperor.

Right here . . . in incidents like this . . . in where morale is born and nourished. Our pilots are "battered" by the nightmare of flaming death which must be in the mind of every Jap. Our men know their fuel tanks can be pierced by 30s, 50s, incendiaries, and cannon shells . . . and still hold gas. And that's one of the big reasons why they dive against terrific odds . . . and come home to tell the tale.

B. F. Goodrich makes

many of the bullet-sealing fuel cells used in our warplanes. We have patented many of the developments in fuel-cell construction that have given our fliers an all-weather "edge" on the Jap. . . developments that have helped keep our fliers' morale highest in the world.

Skyway or Highway
B.F. Goodrich
FIRST IN RUBBER

Today, all our research and production facilities are geared to total war. Tomorrow, the "know how" we're gaining now will help bring you a world of safer flight. The B. F. Goodrich Co., Aeronautical Division, Akron, O.

MAKERS OF MORE THAN 80 RUBBER AND SYNTHETIC RUBBER AVIATION PRODUCTS

Wright Pilot Gets DFC

May Perry J. Ritchie honored; back broken in jump.

In peace, Wright Field's test pilots are the most patrolled flyers in the Army Air Forces. Since Pearl Harbor, although they have continued their strenuous and often dangerous flight tests, in new and untried types of planes, their work has been overshadowed by the spectacular combat missions flown by service pilots in the vicious theaters of war throughout the world.

The fact that the combat missions would not have been possible if it were not for the equipment and planes developed and tested by the Materiel Command, has not been entirely overlooked by the War Department, however, as reflected by the recent last week of a Distinguished Flying Cross to Maj. Perry J. Ritchie, "for extraordinary achievement and outstanding heroism" in his test flights with the Republic P-47 Thunderbolt fighter. The award was conferred by Maj. Gen. Charles J. Besshoe, Materiel Command chief.

Made Brave Tests—Testing recovery from terminal velocity drops, Ritchie made more than 20 dives with this plane last June at Wright Field, all from more than 35,000 feet altitude, in addition to numerous other flight test maneuvers. His next-to-the-last dive ended disastrously for the plane and himself, however, when at the Thunderbolt's ceiling, just before he began another dive, five broke out in an exhaust duct, and Ritchie was forced to bail out.

Wearing only a thin sweater flying suit, and without the standard battle equipment standard for high altitude jumps, Ritchie took a last drag on his fixed oxygen mask, unfastened his canopy and left the slip stream to take him out in the cockpit, narrowly missing the tail assembly of the plane.

Delayed Opening Chute—He made a delayed-opening jump in order to get down quickly into warmer temperatures than the 40 below zero at 35,000 feet, and held his breath as long as he could, to cut up his last breath of oxygen.

Finally he pulled the rip cord at about 25,000 feet, but his velocity was so great that the jerk of the opening chute broke his back and he lost consciousness. He believed he had dropped to about 5,000 feet altitude when he regained consciousness to find his eyelids frozen closed, but, however, his eyes were thawed the sea, and he regained



Test Pilot Wins DFC: Maj. Perry J. Ritchie, Wright Field test pilot who recently was awarded the Distinguished Flying Cross for his test flight work, indicating the importance the Army places on this unheralded flying without which many combat missions would not be possible. Maj. Perry is shown going into the cockpit of a Lockheed P-38 Lightning.

DC-3's Move Wounded

Some 1,250,000 American battle casualties have been evacuated by air to hospital bases near Pearl Harbor, according to Maj. Gen. N. W. Grinn, Air Surgeon, who advised Douglas aircraft engineers that the great majority of these wounded were transported from combat zones by Douglas planes.

Gen. Grinn reported that more than 35,000 soldiers were evacuated by air during the Tuscan and Sicilian campaigns and that the planes were flown a total of 8,000,000 miles in the task.

"In every theater of operation, Douglas C-47 Skytrains and C-54 Skyquaters are transporting battle casualties from combat zones to receive medical treatment as speedy as a fraction of the time required by land and sea," said Grinn.

He said that in Africa, New Guinea and Sicily, Douglas transport planes have been called upon to move entire field hospitals hundreds of miles.

since as he reached the ground, landing in a field near Greenville, 76 miles from Wright Field.

Discharged for several months with his vertebrae injuries, he is now back on duty and expects to be back on flying status soon.

Heads Navy Air Unit

The new naval air training command, with supervision over primary, intermediate and operational training, will be headed by Rear Admiral George D. Murray, directly under Vice-Admiral John A. Mearns, deputy chief of naval operations for air.

Veteran Flyer—Admiral Murray has been commandant of the naval air intermediate training command at Pensacola, Fla., and under the new assignment of training duties the intermediate command will be moved to Corpus Christi, Tex., under Rear Admiral C. P. Mason.

Admiral Murray, a veteran navy flyer, holds the Navy Cross for saving his ship, the USS Enterprise, from serious damage during a heavy attack on Feb. 1, 1943.

Air Sciences Group To Meet in New York

12th annual meeting to be held at Columbia U. Jan. 24-27

The Institute of Aeronautical Sciences will hold its 12th annual meeting in New York Jan. 24 to 27 with all technical sessions at the Pupin Physics Laboratories, Columbia University.

Distance, actions and chairman of the boards include: aircraft production, Fredric Glaser, airplane divisions, Buffalo plants, Curtiss-Wright, structures, Walter Harbert, National Bureau of Standards, Air Transport, John C. Leslie, Pan American Airways, materials, George W. DeBell, consulting engineer, aerodynamics part I, Richard H. Smith, Massachusetts Institute of Technology, aerodynamics, Part II, R. P. Harrington, Brooklyn Polytechnic Institute, radio and instruments, Alan O. Binnie, Kellogg Instrument Division, Square D Co.; power plants and propellers, George W. Eady, propeller division, Curtiss-Wright, airplane design, Charles J. McCarthy, United Aircraft Corp.; meteorology, session prepared in cooperation with the American Meteorological Society and relating wing aircraft, R. H. Perwell, Kellogg Aircraft Corp.



for the record...

ON THE SHOULDERS of the oil industry has fallen the responsibility of lubricating the country's industrial plants in a production program, the proportions of which completely outrun all pre-war conceptions of what could be done. . . . If one stops to consider that throughout this program the movement of every wheel and gear and the maximum efficiency of practically every manufacturing operation depends on proper lubrication, only then does the picture stand out in its true importance. . . . Some companies, such as Gulf, have had a generous share in the job that is being done. That is itself is incidental. The significant thing, however, is the fact that the oil industry, through research, through experience and stimulated by the urgency of the task, is successfully meeting these upturned demands.

GULF OIL CORPORATION GULF REFINING COMPANY



AIRCRAFT PRODUCTION

Record-Breaking Plane Production Attributed to Industrial Teamwork

Curtis-Wright's President Guy W. Vaughan credits cooperation all along line for all-time high output of approximately 86,000 warplanes in 1943.

By SCOTT HERSHLEY

Teamwork between all branches of the aviation industry and subcontractors building aircraft parts and planes under license is exemplified in the record-breaking 1943 performance of the industry which produced approximately 86,000 warplanes.

Guy W. Vaughan, president of Curtis-Wright Corp., in commenting on the year's output, noted that the industry produced only 1,141 military planes in 1939, as an indication of the progress made, and added that "the results are reflected in the daily war correspondents describing how Germany is being weakened through bombing of its aviation and communication centers and Japanese forces are being rolled back steadily in the Far East."

2,590 Percent Increase—Vaughan said a survey of his own company

showed that Curtis-Wright's three manufacturing divisions produced 26 times as many warplanes, engines and propellers during the first eleven months of 1943 as during the 1939 period, an increase of 2,500 percent. The units involved were the Curtis-Wright Aircraft Division, Wright Aeronautical Corp. and the Curtis-Wright Propeller Division, the organization's plants being in New York, New Jersey, Pennsylvania, Ohio, Indiana, Kentucky and Missouri.

Coinciding with Vaughan's year-end statements was one made by Myron B. Gordon, vice-president and general manager of Wright Corp., who predicted that the first 1944 output of certain engines would exceed double that of the last twelve months, with production of Cyclone 12's of 2,393 up from increasing 10 percent over 1942.

Forrestal Launch Grumman—At the same time, James V. Forrestal, Under-Secretary of the Navy, at a ceremony in connection with the completion of the last of the Grumman Avenger torpedo planes, said Grumman had stepped up its production faster than any other plant in the country.

Forrestal acknowledged the information reported in AVIATION NEWS Dec. 20 that Grumman is now producing more aircraft than any other plant unit. He added that in December the output of the Navy's new Helicat fighter would be at least 450. A total of 3,581 Avengers have been built by Grumman and since Pearl Harbor the company turned out 6,740 airplanes of all types.

4 Quota Completed—Grumman facilities are now devoted exclusively to the production of Hellcats and the Avenger is being manufactured by Eastern Aircraft Division of General Motors.

In connection with year-end reviews, Alfred M. Warner, president of Republic, announced that his firm had completed production of its yearly quota of P-47 Thunderbolts, high altitude fighter and scout for long-range bombing.

Production Rate Up—The Curtis-Wright Aircraft Division, which makes Warhawk P-40 fighters, Commando C-46 transports, Mellendy SB2C dive-bombers, Shrike A-26 attack bombers and Sessell SC95 scout-observation types, manufactured 40,335,352 pounds of airframes and spare parts during the first eleven months of last year, an increase in weight of 22 percent



AAF STUDIES A JUNKER'S

Wearing Yankee stripes, this Junkers JU-88 bomber is shown at Wright Field where it is undergoing comparison tests with U. S. warplanes. Built in June, 1942, it had only 30 operational hours when captured.

damaged after a forced landing. Its 1,300-mile range was stepped up to 2,600 miles by extra tanks, and flown from Cairo in 5 1/2 days by AAF pilots who gave German instruments except for an American radio-compass.

over the output of the corresponding period in 1942. In November, the division produced approximately 3,900,000 pounds more airframes than the total Curtiss aircraft production in 1939.

Wright Aeronautical, Vaughan reported, increased its production of Cyclone and Whirlwind engines to a point where it is now 35 1/2 times as great as its horsepower volume when the war started. Since the invasion of Poland, Wright has produced 148,042,568 hp. Now producing engines at a monthly rate of 3,000 percent more than its volume in September, 1939, it is increasing the output so that by 1946, again, will be about double that of 1942.

Propellers—The Propeller Division, Vaughan reported, produced during 1942 propellers capable of accommodating engines installing approximately 67,500,000 hp. This is an increase of 90 percent over 1942's output and a gain of 1,200 percent over the 1941 production.

In connection with his report, Vaughan devoted attention to the Curtis-Wright Development Division, set up last year to undertake special research, to handle problems relating to the development and production of aircraft engines and propellers for the war program and also to anticipate the development of postwar markets.

Curtis-Wright claimed a record for the production of one type of aircraft, with the completion of its 15,000th P-40 Warhawk in late August. The report said that, in the 42 months ended Nov. 30, 1943, its production, exclusive of spare parts, of P-40 fighters "established an all-time production record in the American aircraft industry."

Deadline on Coast Deferments Extended

Services have till Jan. 15 to certify as to need of aircraft workers.

Army and Navy representatives in West Coast aircraft plants have been granted an extension of time from Jan. 1 to Jan. 15 in which they may certify as to the necessity of aircraft workers whose deferment is sought by their employers.

The time extension merely gives the representatives an additional two weeks to file certification in line with the original plan when the West Coast program for increased

aircraft production was announced in November.

Services Back Plans—At that time it was determined that the Army or Navy representatives in aircraft plants in California, Washington and Oregon, should support employers' claims for deferment of workers by joining with the employer in certification of the necessity and the request for deferment in those cases where the representative believed the employee to be a necessary man.

While the aircraft companies were not losing a large percentage of men to the armed services, they were losing key men including technicians. Deferments have been granted to meet this situation.



Commando Production Scale Largest Ever Launched: In quantity production at the Curtiss-Wright plants of Buffalo are Curtiss C-46 Commando transports, the world's largest twin-engine cargo plane. Hundreds of

Commandos are being built at this plant and they also are being produced in the St. Louis and Louisville plants of Curtiss-Wright and by Hughes Aircraft at New Orleans.



CONVAIR GETS P-51 MODIFICATION ORDER

North American Mustangs are being modified at the Tuscon division of Consolidated-Vultee, with addition of auxiliary fuel cells to increase combat range. To the right is shown a line of B-24's in the 700-ft Avenger

Gammatrons PIERCE THE ULTRA HIGHS



Above, UHF section of 161.1-mc mobile transmitter operated by WGAR, and designed by W. L. WALLACE, UHF Engineer for the Cleveland station.

"The HK-24 is the best UHF tube for operation at 161.1-megacycles"

The work of W. L. Wallace in the ultra high frequency is attracting national attention. After several years of research and experiment between 30-mc and 250-mc at WGAR, he designed a 157.5-mc AM mobile transmitter with an operating range of 17 miles.

Two years ago the 157.5-mc special event mobile unit was modified into a 161.1-mc FM transmitter, which endured noise and improved transmission, and has a satisfactory operating range of 20 miles from the receiving location.

Now he is engaged in testing a 10-watt 225.5-mc crystal-controlled AM transmitter, and the results will be published in the near future.

For the driven amplifier and power-amplifier stages of these transmitters Mr. Wallace selected Gammatron tubes.

"I know from experience," he says, "that the HK-24, because of its small physical size and high efficiency,

is the only available UHF tube that will operate satisfactorily at 161.1-mc."

In addition to small size and high efficiency, there are other reasons for the choice of HK-24's to pierce the ultra highs. For example, modified electron paths, getter-free bulbs that avoid metallized resistor effects, and lack of internal reactance.

Heintz and Kaufman engineers constantly utilize the results of UHF field tests to design more efficient Gammatrons, and also they are making an important contribution to the opening of new electronic frontiers in the oscillator region.

HEINTZ AND KAUFMAN LTD.
SOUTH SAN FRANCISCO • CALIFORNIA



Gammatron Tubes

Technician Retained—In view of the fact that the Army already has sent several hundred aircraft technicians back to the plants, it appeared unlikely the aircraft companies were in immediate danger of losing this type of personnel.

Several thousand soldiers from approximately 500 stations throughout the country have been ordered to the Kearns air base near Salt Lake City for reassignment and assignment to aircraft plants. Those accepted are given compressed schedules and placed in the related reserves.

La R. W. Hewitt, 18th Regional Wing Adjutant explained that former employees might be returned wherever possible to a specific company, but employees of one company in excess of its needs may be assigned to another company lacking manpower.

AWPC Names Christy—In connection with the program, the Aircraft War Production Council has named Dwight Christy to represent them at the Salt Lake City base to handle placement of men, transportation to aircraft plants and other related items. Only men who wish to return will be sent to a plant and they will be subject to recall to the Army in case of necessity. No commissioned officers are to be named.

It was expected that between 100 and 150 men a day will be released from the Army until the full quota of this initial plan has been reached, which is expected around March 1.

Ballard Moves to N.Y.

Ballard Aircraft Co., formerly Hooper Aircraft Co., of Elmhurst, Ill., has transferred its main office to 331 Madison Ave., New York City and its engineering department from Arthur Avenue, W. Va., to New York.

R. M. Reaves, president, and expansion of activities made the move necessary. This concern was founded with the long range purpose of manufacturing civilian airplanes in plastic-bodied plywood.

32,000 Wasps Made By GM Buick Branch

Total output since war started is enough to power 8,000 Liberators, company reports.

Roughly Pratt & Whitney twin row Wasps to power more than 32,000 engines—have been produced by the Buick division of General



NEW COMMISSARY SERVES 60,000 MEALS A DAY;

Sixty thousand hot meals a day are being served aircraft workers in a \$500,000 model commissary, a gift by the management to the Lockheed Employees' Recreation Club. Believed to be the largest ever installed in the aircraft industry, the commissary features a cafeteria seating 1,500, a quick breakfast room, five private dining rooms seating 60 each and one seating 45, and a jewelry society shop. It is staffed by 450 persons.

Workers since the war started and approximately 75 percent of those were manufactured in the past twelve months.

Output Triple—Harlow H. Cartee, General Motors vice-president and chief executive of the Buick division, said this work of the bomber engine plants in Flint and Motown Park, Ill., fulfills the aim of the

company to triple output of this item during 1943.

He said it places Buick division in the category of the leading producers of aircraft horsepower in the world and the largest producer of Pratt & Whitney 1,800 engines for the Liberator bomber program.

Industrial Leaders Given Data on War

Army and Navy officials held two day sessions in Los Angeles.

A confidential analysis of military problems and developments was given West Coast leaders at management, labor and public agencies at a conference at Los Angeles, Jan. 2 and 3, sponsored jointly by the War and Navy Departments.

High-ranking officers and officials of the Army and Navy presented the two-day program to about 600 representative businessmen and industrialists, labor and newspapermen from California, Oregon and Washington.

Operations—The discussions focused on a factual exposition of current and future military operations. Details of combat were disclosed by officers with first-hand experience on the battle front. Global warfare in its other aspects, including logistics and supply, were depicted.

The conference at Los Angeles was analogous to the conference sponsored by the Army last September.



WINS 72 CHECKS:

Jack Peelin, left, who works at the

Lanching P-37 farefare in a Lockheed plant at Los Angeles has received 72 awards for work accomplishments. Here, Peelin is receiving eight checks in one batch from P. Frapp, superintendent of Lockheed's Plant No. 4. Peelin has received \$1,526 and has 258 new suggestions up for consideration. Last year Lockheed paid \$270,593 to employees for 1,500 production ideas.



MARSHALL INSPECTS DOUGLAS PLANT:

Gen. George C. Marshall, Army Chief of Staff, tells Donald Douglas, president of Douglas Aircraft, about his trip home from overseas in a Douglas C-54. The general stopped off in southern California on his way to Washington and inspected Douglas' Long Beach plant, which is turning out C-47 Skytrains and B-27 Flying Fortresses.

ber in Washington, which were attended by many West Coast and other aircraft executives.

AAF to Take Over Modification Center

Maintenance, operations at Dayton unit shifted from Northwest to Materiel Command.

Transfer of maintenance and operations at the Northwest-Vandalia Modification Center at Dayton Municipal Airport from Northwest Airlines to AAF Materiel Command has been ordered, preliminary to turning over all activities at the center to the Army when Northwest's contract terminates on April 1.

In the absence of Lt. Col. Carl A. Cover, chief of the Modification Center Branch Materiel Command, a subordinate declined comment of whether the change was an indication of general Army policy on modification centers operated by airlines.

Army to Take Over—More than 100 soldiers will move to the Vandalia center by Jan. 15, with an equal number being transferred later, if needed, after training at Wright Field, such as Clinton County Glider Base at Wilmington, Ohio. Northwest's civilian employees

now operating the Vandalia base may remain by applying for civil service status as government employees. Gradual transition of control is expected to be completed at the termination of the contract. Under the new setup, when com-

Plane-Tank Engine

The Wright Whirlwind engine, which now powers many of the tanks and gun carriers used by American armed divisions in direct action in the World—used in aircraft, company officials reveal.

This type has been adapted to use in tanks by the addition of a combustion cooling fan and flywheel mounted on the propeller shaft in place of the propeller and by changes in the induction system to supply adequate carburetor air, since the engine is installed behind heavy armor plate in the rear of the tank and since air does not enter the air scoop at the high velocity it does in aircraft.

Wright and Continental-built Whirlwinds powered not only the General Grant and General Sherman tanks, but also the new M-4 half-sprigged 105 mm howitzers which went into action in the African campaigns.

ple, the Wright Field administration will handle such work as plant maintenance, protection, administration and supply, while the Materiel Command Engineering and Experimental Division will plan and conduct technical and experimental work.

Coast Plants to Plan 60% Increase in '44

Aim at 225,000-ton output against 141,000 last year.

The seven Aircraft War Production Control companies on the Pacific Coast have determined not only to meet but beat their new 1944 quota with an output of 225,000 tons of planes in the next twelve months.

The magnitude of the task which these companies—Boeing, Consolidated Vultee, Douglas, Lockheed, North American, Northrop and Ryan—have laid out for themselves is pointed up by the fact that they produced 201,900,000 pounds of warplanes in 1943 or 141,865 tons. This was a 72.31 percent increase over 1942's total of 164,512,350 pounds.

West Coast plants produced 85,616 warplanes in 1943, compared with 17,894 in 1942, an increase of 36.54 percent, the lowest percentage increase in west 1943, as compared with weight, being indicative of the trend to heavier aircraft.



NEW HELMET:

The AAF Materiel Command's flying clothing branch and the Ordnance Department have perfected this new M-4 helmet, weighing about three pounds and affording maximum protection to neck and face. The pilot shown is in a B-25 cockpit.

ARMY'S AMPHIBIOUS TRANSPORT

for troops, ordnance, supplies and for the evacuation of wounded



EDO
AMPHIBIOUS
FLOATS
with retractable wheels

built for the needs of
AIR-SEA-LAND WARFARE

An Edo achievement—Developed by Edo engineers, these giant twin floats, equipped with retractable wheels for operation from beaches and landing fields, represent a notable war-time advance in the design of amphibious float gear.

EDO AIRCRAFT CORPORATION, 631 SECOND STREET, COLLEGE POINT, A. I., U. S.

Photograph shows the Douglas C-47 "Dakota" on the World War II amphibious float gear.



EDO FLOAT GEAR

SERVES THE UNITED NATIONS

...IT'S ALL
ALUMINUM

WEIGHT
SAVING = $\frac{2}{3}X$ = EXTRA ARMAMENT AND FUEL
FOR THE ARMY AIR FORCES

Here's an unknown that's worth knowing about because it's making history in far-flung aerial looking: $\frac{2}{3}X$ is the total weight of copper coolant radiators and oil coolers... a weight savings tried for years to reduce $\frac{1}{3}X$ is the amount of weight currently being saved now that Clifford's special discovery of the long-waisted method of bending aluminum makes possible the replacement in aluminum

size and shape of heavy-weight copper by Feather weight aluminum alloy.

Clifford's $\frac{2}{3}X$ is being put to good use by the United States Army Air Force... saving 130 pounds per car type of fighter—a weight-saving already translated into performance... and now being applied to another fighter with a $\frac{2}{3}X$ potential saving of 220 precious pounds.

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TRANSPORT

TWA Studying All Aircraft Designs for Post-War Operation

Craft with two, three and four engines, and of all shapes are included in evaluation for future use on local, regional and long-range services.

By ALEXANDER MCSURELY

The engineering department of Transcontinental and Western Air, Inc., is exploring possibilities of virtually every type of plane and service that an airline may operate after the war.

J. C. Franklin, vice-president in charge of TWA's engineering department at Kansas City, thumbed through a folder of interesting looking airplane designs as he spoke, and showed a few of them to his interviewers.

Everything Considered—"We are making studies on all kinds of plane designs, from the predominant two-engine and four-engine conventional planes of today to radical, weird types with the lids up in front. We are not forgetting piston planes or dual rotation propellers, and we are even doing some more studies

on the old tri-motor, dressed up in modern streamlining with triple landing gear," he continued.

The TWA vice-president who had an important share in TWA's studies leading to the airline's sponsorship of the Boeing Stratoliner, and more recently the Lockheed Constellation, points out that many problems apparently far removed from actual design of the plane will vitally affect the design.

Economy Planned—"For example, one plane design we have drawn would make it possible to operate a low cost passenger service without a hostess. Regulations require that our crew be able to check on the passengers. This would make it necessary to place the pilot's cockpit at a point where the crew could keep the passengers' cabin in view

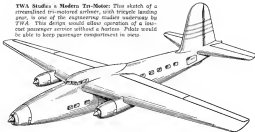


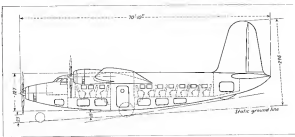
Heads TWA Study: J. C. Franklin, vice-president engineering for TWA, is leading his company's studies of postwar aircraft.

The design requires the door to be locked by the pilot or co-pilot, and provides several alternate arrangements for storing baggage inside the passenger cabin to eliminate need for checking it. This would speed loading and cut down dead time on the ground."

The return to consideration of tri-motored aircraft, Franklin said, was brought about by CAB regulations affecting minimum power requirements for an aircraft with one engine out. With a twin-motored plane, each engine must have sufficient power to meet that regulation. A tri-motored craft could meet the same requirement with the output

TWA Studies a Modern Tri-Motor: This sketch of a streamlined tri-motored airliner, with triple landing gear, is one of the engineering material under study by TWA. This design would allow operation of a low-cost passenger service without a hostess. Pilot would be able to keep passenger compartment in view.





High Wings Design: TWA's expenditure into all types of aircraft for passenger operation resulted in a sketch of this high-wing model, seats as shown, with fuselage

sewer the ground to speed loading. Officials make clear this is only one of many sketches drawn that far of planes to meet postwar transport requirements.

of two of its engines, making it possible to use smaller engines with greater economy.

Extra Takeoff Power—Another factor in consideration of the trimotor is the added "snatch" on take-off which the extra engine gives, particularly important in the design of smaller feeder-type planes, which must operate in small airports with short runways if they are to serve the smaller towns in their territories.

A breakdown on the various sizes of planes which Franklin believes the airlines may operate in the future includes the following:

- 1. A 4-to-6 passenger plane for feeder operations equipped with air-aid parking device.
- 2. A plane with 15-to-40 passenger capacity for local routes making stops every 50 to 200 miles. Speed as looking to insure economical operation despite the frequent stops would be a primary requirement of this plane.
- 3. A 50-to-60 passenger plane for transcontinental service, making stops every 150 to 400 miles.
- 4. A heavy plane of 60-to-80 passenger capacity, with considerably more deluxe accommodations for passengers, and fewer stops, perhaps 250 miles apart, for transcontinental service.
- 5. A still larger plane of 80-to-100 passenger capacity for transoceanic operations of 2,000 to 4,000 miles.
- 6. Air Conditioning—Improvements of passenger comfort shift are also being studied Franklin believes that considerable changes are needed

in ventilation and air conditioning. Devices for electrical precipitation of dust and smoke, already developed for use in homes, can be applied to aircraft with only slight weight penalties.

Arrangements to bridge the gap between the time when the air-conditioner will see the ground comes to operate, and the plane actually takes off, sometimes a considerable period of time at a busy airport, are also a future requirement, which will probably lead to installation of complete lightweight air conditioning equipment in the plane itself, he anticipates.

More a Seat—The air-conditioning equipment may well add a light seat to the air which the passenger must breathe. "I don't mean a rocking perfume to make the plane smell like a lady's boudoir, but a clean fragrant pine scent or something like that," he explained. While served on the deluxe planes of the future probably will be cooked by electricity on the plane, instead of using the pre-preparation method and thermos equipment near the general practice of the airlines.

More High Wings—The TWA vice-president agrees with most other present-day aircraft designers that the high-wing airplane will probably replace the low-wing structure of today because it will bring the fuselage closer to the ground, with economies in loading. His low-wing passenger plane is designed so that passengers step in and out the door without necessity for wheeling up steps to the plane, making as-

other substantial saving in time. A quick glance at airline history shows that Franklin's studies are of more than ordinary significance in the light of past research and engineering done by TWA.

Premier DC-1—Specifications submitted by TWA engineers in 1931 to the Douglas Co. resulted in the building of the DC-1, present plane of the now standard DC-3 airliners and their predecessors, the DC-7s. The airline worked in cooperation with the Goodrich Company in developing the rubber ball-type wing de-icer in 1933, and was the first airline able to adapt the Sperry automatic pilot as standard equipment, the first to use wing flaps, the first to use glass landing systems for its passenger cockpit.

Powered Glider Research—Among other TWA firsts were the use of the slinger ring propeller device, the use of the electrical engine synchronization indicator, the self-transmission bearing radio direction finder, the radio broadcast receiver for passenger use, and the first supercharged cabin over-the-board foreign transport service.

The high-altitude research flights of D. W. (Tommy) Tuckman for TWA, made in a single-engine Northrop Gamma stratosphere plane equipped with a supercharger borrowed from the Army in 1936, making observations of weather conditions up to 36,000 feet, and leading to specifications for the Boeing Stratoliner, is another research contribution of the airline which must not be overlooked.

High Altitude Operation—TWA was able to operate the Stratoliner for only 18 months, before they were called into emergency use by the Army in foreign service, but the time in airline operation was enough to give the company a valuable backlog of operational experience for similar postwar operations, Franklin points out.

PAA Merges Units In Latin America

East-West divisions combined with headquarters at Miami.

Pan American's participation of a heavy expansion of its lines in the Caribbean area and South and Central America after the war is evident in its consolidation early this month of its Eastern and Western divisions into one Latin American division with Miami headquarters. The Eastern division, formerly supervised from there, covered the west coast of North America as well as Pan American's subsidiaries in Cuba, Brazil, and the Antilles. The Western division, out of Mexico City, consisted of the lines from Los Angeles, Brownsville and New Orleans on down to Balboa. The two divisions had separate maintenance, fleets and pilot operations.

Directed By Harrison—The consolidated set-up is directed by W. B. Harrison, who has been in Central and South America for the last 25 years and with Pan American for ten or twelve of those. Formerly in charge of the Western division, he has been elevated to a vice-president, and will now direct all South and Central American and Caribbean operations.

Pan American now has four commercial divisions. In addition to the Latin American division, the Atlantic division, at North Beach and Long Island, covers all trans-Pacific operations. The trans-Pacific division out of San Francisco now goes to the Hawaiian Islands, New Zealand and Australia. The fourth is the Alaskan division, which has operated through Canada and into Alaska from Seattle since 1942.

Foreign—Pan American-Globe, 54 percent owned by Pan American Airways, covers under the new Latin American division set-up, although it has an independent operations arrangement.

Both of the companies, according to Pan American's year-end report, had 136 aircraft in operation at the end of 1942.



WORLD'S OLDEST MAP:

C. H. Goodhue, chief pilot of Pan American's Africa-East division, holds what the Civil Aeronautics Administration says is the world's oldest map, a clay tablet depicting a sea, fort and two rivers. The tablet is part of CAA's "Bible" of a exhibit in the Commerce Building in Washington.

During the past year, they flew 53,446,890 miles, compared with 43,939,744 in 1942 and 24,675,851 in 1941. Passengers in 1943 numbered 694,166 against 391,015 for 1941. Passenger miles of 475,470,590 compared with 236,630,521 in the last year before the war. The system carried 46,340,000 pounds of cargo and logged 71,713,068 net miles in 1943, and the 14,465,000 word mail load was over four times that of 3,668,639 in 1941.

Just how wartime operations exceed those of peace may be seen

from the fact that one of Pan American's war divisions operating for the Air Transport Command crossed the Atlantic more than nine times as often during 1943 as did the entire Pan American system in peacetime. Another scheduled flight.

New Records—Pan Am's share in the 1943 operations was such that it exceeded its 1942 records in all categories: plane miles totaled 4,700,000 compared with 4,300,000 in 1942; passenger miles were 51,500,000 in 1943 and 43,000,000 in 1942; passengers carried, 69,000 compared with 54,713; express, 3,000,000 pounds compared with 1,350,000; mail 203,000 pounds compared with 242,000. Personnel increased from 1,933 in 1942 to 2,500 last year.

Like Pan American, Panagra has experienced difficulty in obtaining equipment. An important feature of its postwar plans already advanced, a four-engine equipment to make possible full night operation.

Northwest Financing

Airline files statement with SEC for common stock offering.

Plans by Northwest Airlines for a common stock allotment to finance future expansion have been filed in a registration statement with the Securities and Exchange Commission at Philadelphia.

The plan calls for 138,000 shares of common stock without par value, of which 117,446 will be offered present common stockholders at a ratio of one share of the new stock to each two held on that date. Price is to be set by amendment, Full-



PAA LOADS FIRST ALL-CARGO CARIBBEAN CLIPPER:

Dock view of the loading of the first Pan American Clipper in PAA's new all-cargo service in the Caribbean area. Four tons of express are being loaded for a 1,750-mile trip to Puerto Rico. The service will operate between Miami and San Juan and Miami and Barranquilla, Colombia.

and fractured-there subscription warrants will evidence subscriptions. The warrants will be irrevocable and will expire at 3 p.m. Jan. 15.

Underwriting Group—Members of an underwriting group, headed by Auchincloss, Purker and Helpheth, will purchase the unsubscribed portion of the 117,466 shares, if any, and offer them to the public at a price to be named by directors. The remainder of the 139,490 total will be issued under options.

TWA Opens Course For AAF Mechanics

Selected students sent to Kansas City for training.

By ALEXANDER MCBURELY

Hand-picked Army Air Force enlisted men are getting a post-graduate course in aircraft inspection and maintenance under experienced active personnel supervision at the flight mechanics school operated by

Transcontinental & Western Air for the Air Transport Command at Kansas City.

Graduates of the 60-day intensified transcontinental training school are qualified as flight mechanics and assigned to four-man operational units, including pilot, co-pilot, navigator and flight mechanic—to haul personnel and critical air cargo in C-46 Curtiss Commando and C-47 Douglas transports.

Selected Students—The students are selected from enlisted men who have completed a basic air mechanic's course in the Army. Some have had additional specialized schooling in aircraft mechanics. With this foundation, they study virtually every phase of aircraft engine, propeller, air frame, radio and equipment maintenance.

Students who complete the course satisfactorily can do or direct nearly all first and second echelon maintenance work. Instructional station pictures play a part in the schooling, but the main method is the cut-and-dry plan.

Radio Men Trained—Besides the flight mechanic course, the school is instructing a group of army flight radio operators, and ground radio mechanics, as specialists in radio maintenance and repair.

The flight mechanics also receive a 60-day course in physical culture to toughen them for combat duty overseas. Since, because of the nature of their work they may not be armed during an attack, they are taught commando-type hand-to-hand fighting and pole for combat emergencies.

Burke's Resignation Laid to Air Policies

High cost of diplomatic job and inability to express convictions freely also believed factors.

By BLAINE STUBBLEFIELD

Thomas Burke's resignation as chief of State Department's international communications was perfectly sensible, but he did feel that government procedure stood in the way of his expressing out on his convictions. He told *American News* he had been trying to get out for several months. One factor was the cost of maintaining his section of the diplomatic front, which was too much for his salary.

Burke expressed admiration for Secretary of State Cordell Hull, for Gen. H. H. Arnold, chief of the Air Force, and for Gen. Harold George, chief of the Air Transport Command, and said he would continue to serve the State Department and the cause of American aviation abroad.

May Join FAA—His interest in international air transport causes observers to believe he will stay in that field. Some think he will join Pan American Airways. Opinion in some quarters is that Burke's espousal of the single-ministry control foreign air service led to his resignation. The difference of opinion on this matter reaches to the very top layer of federal policy makers.

Mr. Burke served in the last war, stamped the United States for Secretary Hull's reciprocal trade program, took a leading part in persuading the Latin Americans to throw out Axis airlines and radio stations, headed negotiations for right-of-way for the Air Transport Command the world around. He was a member of the working subcommittee of the interdepartmental committee on international aviation.

STRENGTH IS IMPORTANT

... BUILD WITH TIMBER STRUCTURES



CLEVELAND, Ohio—Largest trusses ever designed, constructed and erected by Timber Structures, Inc., for 200-ft. assembly plant for The U.S. Highway Bond system. Supporting floors and roof, were built in only 100 days. The 100-ton trusses built in only 100 days.

ROOF TRUSSES and other forms prefabricated by Timber Structures, Inc., embody the natural strength of wood plus conversion strength of modern timber connectors. So strong, in fact, are laminated timber assemblies, that they are being used in structures where previously only steel girders were considered practical.

Strength is important, yet it is but one of the features of Timber Structures' products. Other advantages are ready source of materials, speed of construction, economy and permanence.

This organization has rendered plans of service to contractors, architects, engineers, plant management in prefabricating roof trusses for hangars, manufacturing plants, aviation housing of all kinds. We invite inquiries as to how performed and as to our ability to serve you in timber or other structural materials. For evidence of work we have done please use the coupon below or write direct for literature.



LARGEST of their kind ever the 10,000-lb. laminated trusses for this aircraft plant. Center chords of the lower trusses are built up of 10x16x16 lumber, 16 timbers; lower chords, 10 timbers; in the upper chord, laminated truss chords are built up of 20x20x16 lumber. All timbers in lower chords, 14 timbers in upper chords. Timber Structures is now building similar trusses for airport projects. This work being 100% of 100% done in center of hangar.



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100 ft. of the 100-ton truss in Portland, Oregon. Used at the 100-ton truss, used at 100 ft. truss, New York 17, N.Y.



TWA Mechanics Learn Cargo-Loading—The-dious procedures for loading air transporters are among the operations taught at the Air Transport Command transcontinental training school for flight mechanics, operated by Transcontinental & Western Air at Kansas City.

Spirited Session Held On Post-War Aviation

Peace problems in air field discussed at United Nations Forum in Washington.

A spirited panel discussion convened last week's United Nations Forum on air transport development and postwar international aviation at Constitution Hall in Washington.

Main speaker was William A. M. Burden, special aviation assistant to the Secretary of Commerce. Panel speakers were Ralph S. Damon, vice president and general manager of American Airlines, Senator Brewster (R., Mo.), member of a Senate aviation subcommittee, and Rear Admiral Henry S. Land, chairman of the Maritime Commission, and Burden.

Interchange—An interchange occurred between Damon and Brewster. The latter, one of five senators who made a world tour of battle fronts, asked Burden his prediction on post-war international air traffic. Burden said he thought traffic would be heavy but did not believe the same was true of dollar volume.

Brewster then pointed out that Pan American's president, Juan Trippe, who was to have been on

the panel but couldn't attend, had said the fare from New York to London would run around \$300 after the war. Didn't Burden think, the Senator asked, that such a low fare actually would lead to a big increase in passenger revenue?

Editor on Figures—While Burden was starting his answer, Damon chuckled, and Brewster turned to him to ask if Damon did not respect the opinion of the man who built the greatest airline in the world.

"I have the greatest respect for the president of the Senator's favorite airline," Damon replied, "but I do not agree to his figure." Damon, pressed for his opinion, later said after some deliberation, his estimate for the transoceanic post-war fare to Europe would be closer to \$300. He was reluctant to give a figure because all the facts were not available, he said. The one-way fare from New York to London now is \$623.

In his prepared talk, Damon said it was reasonable to expect that in 20 years transports may cruise at 400 mph or better, and soon after the war, the pre-war cruising speed of 170 miles per hour for certain types of domestic transport planes will be improved to between 200 and 300 mph. He added that designs

will be started soon after victory for commercial transport planes which will achieve 300 mph for long hops.

Competition—Damon called for competition in post-war aviation, explaining that the domestic line sharing this year had the biggest drawback: "under the stimulus of competition that under the questionable blessing of single operation, whether it is called by the high-sounding designation of the 'chosen instrument' or the common garden variety term of 'monopoly'."

"There is no more point in the United States' subscribing to the 'chosen instrument' theory simply because some other countries have adopted it," he contended. "There is no air subscribing to fascism simply because it is the chosen instrument politically of some foreign nations."

Foreign Routes—Burden declared that "we must not fear that the American air transport industry will be overwhelmed by foreign government airlines." Plans must be prepared, he asserted, on the principle that the war has transformed international air transport from a government-subsidized experiment into an economically sound transportation industry, that growth of air transport does not constitute a military menace nor does foreign commercial plane passage over a country threaten its security, and that restrictions on international air transport, if imposed, will be for reasons of trade policy.

Brewster Declines Policy Delay—Senator Brewster, referring to a survey by the Interdepartmental Committee on Postwar Aviation, explained that he was violating its secrecy "sufficiently to say that I heartily concur with its declaration that delay in determination of a policy results in a steady deterioration in the position of the United States in this most critical field."

He urged that the United States, cooperating with Great Britain, Russia, and China, take the responsibility of developing and guaranteeing "a real freedom of the air." It was the Senator's idea that national post-war aviation policy should recognize the fact that monopoly has characterized the international air transport development of foreign nations. Why, he asked, should a similar type of operation not be the country's answer to the situation?

Land thought steamship lines should be permitted to operate on a plenipotentiary basis, despite growth of air transport, more surface vessels will be needed after the war, the Admiral said.

Convair Board Reported Planning Move on Consairways Separation

Directors of parent company expected to vote at next meeting on plan to divest firm of trans-Pacific airline; Manson interested.

Separation of Consairway, trans-Pacific west coast air transport line, from Consolidated Vultee Aircraft Corp. (Convair), of which it now is a division, appeared last week as a definite likelihood. The action would have important post-war possibilities.

AVIATION NEWS was informed that the next Convair directors' meeting will take up and act on the question of relinquishing control of the Air Transport Command operation.

Manson Interested—West coast advisors are that Matsuo Nishimura, of San Francisco, is interested in Consairway to the extent that it has secured an agreement with representatives of the line. There is no doubt that Consairway, along with other west coast carriers in that area, is helping to make trans-Pacific operations a big factor in post-war transportation.

Its flights regularly parallel those of United Air Lines, also flying the Pacific for the ATC. In addition to these and ATC's own operations, Pan American Airways is flying the Pacific and the Naval Air Transport Service is making trans-Pacific hops.

Separation—One strongly favored postwar possibility for Consairway has been that it will provide Convair with the latter's own flying service. Such a move, it is believed, would require the divorce of the division from the company, and formation of a separate corporation in which, under federal law, Convair's interest would be limited to 25 percent of common stock.

Managed by Robert Stuart Mitchell, 33, former flyer for United Air Lines and Catalina Air Lines, Consairway's trans-Pacific takeoff point is at Hamilton Field, north of San Francisco. Recently it shortened the distance to its service base from Hamilton Field by moving the former from San Diego to the vicinity of Oakland.

Schedules Increased—With ten planes, the line has increased its schedules across its first official run on April 28, 1945, to approximately one each day. In October, 60 scheduled trips were flown. The 732nd trans-Pacific flight left the United States Oct. 31. Operations started and continue with converted

Lighter Packaging

Flow space and money are being saved by substituting lighter packaging for heavy containers for war materials shipped by Naval Air Transport Service.

Under the program, cardboard boxes, metal cans, and other containers, exclusive of conversion, amounted to \$4,418,451, while per factor costs figured \$9,770.17 per ton, \$153.91 per hour, and \$6,845.35 per ton mile.

V-2's: The 55 flight crews available at the start of operations have increased to 37, and 15 more are in preparation.

At an Australian terminal at Am-

berly, Consairways services at least two of its aircraft daily, operating on a three-shift basis. Average lay-over time has been reduced from 24 to 6 hours. Consairways recently flew the trans-Pacific record trip, from Hamilton Field and back, in a record time of 4 days and 43 minutes.

Costs—Total expenditures from the time the line started flying last October, under Consairways transport and Ambery Field contracts, ran \$5,178,168. Costs figured \$9,885 per ton, \$150.37 per hour, and \$1,583.35 per ton mile.

Under the program, cardboard boxes, metal cans, and other containers, exclusive of conversion, amounted to \$4,418,451, while per factor costs figured \$9,770.17 per ton, \$153.91 per hour, and \$6,845.35 per ton mile.

Larger Port Urged

Engineers' survey says development of Twin Cities World Chamberlain field.

Recommendations in an engineering survey for the Minneapolis and St. Paul Metropolitan Airports Commission would result in development of World-Chamberlain field at Minneapolis as a major air terminal for the Twin Cities. Holman field in St. Paul would become a center for express and private flying.



Experts Discuss Air Transport's Future: Following their appearance last week at the United Nations Forum on Washington's Constitution Hall, Ralph S. Damon (left), vice-president and general manager of American Airlines, and William A. M. Burden (right), special aviation assistant to the Secretary of Commerce, broadcast a summary of their views on post-war international air transport. Between them is NBC Commentator Richard Harkness.



TACA LOADS SILVER FOR U. S.:

This picture from the office of the Coordinator of Inter-American Affairs shows a shipment of silver, destined for the United States, being loaded on a TACA airframe. The company is that in which Transamerica & Western Air recently merged.

HUNTER HEATER READIES MOTOR ON COLDEST DAY IN FEW MINUTES

Quick-on Duct Connections
Permit Easy Set-Up of
"Cold-Starting" Device

BURNS ANY TYPE OF GASOLINE



CLEVELAND, OHIO—Details of a gasoline heater made by Hunter and Company of this city for preheating aircraft engines quickly to starting temperatures in severe weather have already been reported in previous editions. Advantages claimed for the Hunter device are its lightness, simplicity of construction, the ease with which it can be quickly set up and disassembled, and the fact that it operates on any type of gasoline.

The Hunter preheaters, weighing approximately 45 pounds, deliver 25,000 B.T.U. per hour and no preheating is required through the engine heating by means of fuel-rich fumes. This makes it possible to pump hot air over a cold engine in sufficient volume to bring it to an easy starting temperature in a matter of minutes, even in sub-zero weather.

Flight deck use is provided which controls the heater so that the preheating of an engine can be shown to the crew. There is no danger that the fuel can be quickly ignited with the aid of a simple lever provided with an interlock. Advantages to make for easy use and quick set-up. Special instructions are available for delivery of the heater.

Rapid heating and recirculation of the air within the enclosed area insures from heating of all parts of the engine. This means that the engine will be brought to proper temperature, the oil brought to the proper viscosity, and the engine will be ready to start.

The unit is compact and can be damaged from the handle down and up inside a plane cabin, or used to blow hot air into the engine area where mechanics are working in low temperatures, or for a number of other special services in addition to its main job.

Complete information on the Hunter Preheater can be obtained by writing or visiting Hunter & Co., 1415 & 17th Street, Cleveland, Ohio.

Agency. The comparable 1943 figure was 16,886.

Daily express cargo over the domestic air route network averaged 45 tons in 5,930 shipments, the average close to 20 pounds and flown 3,000 miles. Estimates are that 1,600,000 shipments were carried during the twelve-month period.

✦ **Future Shipments.**—Despite wartime restrictions, international air express service averaged 14,000 shipments a month, the division said. Connection points with domestic routes are Miami, Brownsville, Los Angeles, Fort Worth, El Paso, New York, and New Orleans, which became an international airport in July. Trans-Atlantic air express was two years old in December.

Domestically, several flights exclusively for mail and express were started. There operate between the coast, a fourth from New York to Miami.

✦ **Rail-Air Express Up 24%.**—Rail-air express shipments, moved between the 346 airport cities and 22,000 rail-served express offices, increased 34 percent in the first 11 months of the year. Express charges on them were up 67.4 percent for the same period.

The division's report cited the rate reduction of up to 13 percent, effective July 15, as "indicative of how increasing air cargo volume will result in savings to the shipper."

20 "Mars" Flying Boats Ordered for NATS

First of giant aircraft expected to be delivered in about a year.

The recent record-breaking flight of the Martin Mars has resulted in a Navy order for 20 of the huge flying boats for use in the Naval Air Transport Service.

Secretary Knox, in announcing the placing of the order with the Glenn L. Martin Co., said it probably would be a year before the first of the new ships is completed.

✦ **Build as Patrol Bomber.**—In this connection, it should be remembered that the Mars, world's largest plane and the only one of its type, originally was designed and built as a patrol bomber.

The new planes, on order, will be strictly for cargo transportation and consequently considerable engineering will be involved in making the use of the boat conform to cargo-carrying demands.

While changes may not be extensive, some are necessary to improve the cargo-carrying facilities at the craft, explains the fact that the Mars established four world's records on her first war mission, one of which was a new non-stop air cargo-carrying mark. The Mars flew 4,578 miles non-stop to Natal, Brazil from the Naval Air Station at Patuxent River, Md., and then home again by comparatively easy stages.

✦ **Perfect Performance.**—Martin engineers and Navy men gave the Mars a thorough check-up after the flight and found her in perfect condition, although new engines have been installed, since the old ones had been subjected to unusual strain in tests prior to the South American mission, although they were in good condition. Mars is powered by four Wright Cyclone engines delivering 2,350 hp. each.

The new flying boats of the Mars type will be taken into Naval Air Transport Service duty as they are completed and used primarily for over-water transport of war materials. Their performance will be closely watched by the aviation industry, with an eye on postwar air passenger and cargo transportation, particularly for transoceanic service.

Lindbergh Field At San Diego Shut

Commercial planes barred from port, held sub-standard, by CAA.

Lindbergh Field, San Diego's municipal airport, was closed to commercial air traffic last week by R. A. Hawk, sixth region director, Civil Aeronautics Administration.

Unlike the Civil Aeronautics Board's closing of Philadelphia's airport a week earlier for war security reasons, the Lindbergh Field ban on commercial flying was based on a complaint that the city of San Diego failed to maintain runways and field operation within safety standards demanded by CAA.

✦ **Cites Landing Danger.**—"Every landing is a potential crashup," Hawk told city officials. He added that his order will stand until one man is made responsible for management and maintenance of the airport, now under supervision of the city harbor commission. No city official, it is said, has been willing to take responsibility for the field's substantial 75-foot-wide concrete landing strip or poorly repaired holes in the runway.

Officials of Western, United, and American airlines have indicated

placation over Hawk's action, and see it as a step toward the field's improvement.

✦ **Covered Flares Used.**—Use of the airport for military purposes and testing of Consolidated Value planes continues.

ATA Legal Counsel Relinquishes Account

Airline members of association get six months' notice.

Airline members of the Air Transport Association have been notified that the Association's general counsel, the Washington law firm of Connelley, Butler, Swales, Adelson and Sheehy, will no longer handle the ATA account after such time as a successor can be chosen.

The withdrawal, rumored for some time, names that Howard C. Wentwood, who, as a member of the firm, has had direct charge of ATA legal affairs, and Gerhard A. Geisel and Charles Dawson, who assisted him, will no longer continue in that capacity.

✦ **Six Months' Notice.**—The firm's letter suggested that the ATA probably will be able to obtain other counsel by June 30, 1944—an effect a six months' notice. The company has held the association's account since shortly after the latter was formed in 1926.

It also has been found that Panagra through close association with W. R. Grace and Co., steamship line that shares Panagra 39-49 with Pan American Airways. These deals were assumed with the expectation there would be no conflict with the work for the association. Now, however, the law firm also is withdrawing from this connection.

✦ **Freedom of Choice Restricted.**—The letter tendering its resignation from the ATA account explained that the firm desires to be free to determine what cases it should take, without restrictions with the association.

SHORTLINES

✦ **L. Welsh Pease,** chairman of Civil Aeronautics Board, has returned to his desk after a month's absence during which he spoke in Iowa and later underwent a major operation at Rochester, Mass. His first at the office was Iowa located, as he is still recuperating.

✦ Civil Aeronautics Administration is offering \$100 in war bond prizes for school children's essays on the "Sky-road." Those in competition will exhibit in the Department of Commerce auditorium, Coastwise Bldg. 1.

✦ A shuttle service has been started between Vera Cruz and Tuxtepec by Compania Mexicana de Avianca, Pan American's Mexican affiliate. The service operates daily except Sundays.

✦ Canadian Pacific Air Lines reports for 1943 increases of 21 percent in passenger traffic and 30 percent in mail traffic, and a decline of 4 percent in cargo. Company carried 19,550 passengers, 3,200,000 pounds of mail and 9,100,000 pounds of cargo during the year, its planes increasing their 1942 mileage by 10 percent to 4,000,000 miles in 1943. Cargo fell off to some extent after the Alaska highway was completed, and due to declining mine activities.

✦ Officers of Northwest Airlines were re-elected at the annual meeting. Chief Hunter, president; E. J. Whelan, vice-president and treasurer; R. E. Fennell, operating vice-president; A. E. Fennell, secretary; L. E. Halden, assistant treasurer; and Camille L. Stein, assistant secretary. Hunter is beginning his seventh year as head of the company.

✦ At St. Martin, Netherlands West Indies, an airport is under construction to make possible replacement of the indirect route from the United States via Caracas, with a direct line via Puerto Rico and St. Thomas.

✦ Pan American announces that six shipments destined to 11 countries and colonies in Central and South America, the West Indies and the Caribbean, including Mexico, no longer require air transportation privileges for military cargo. It is possible to accept non-perishable shipments, the law says, although normal service is not guaranteed under war conditions and perishable shipments are liable to be precedence over non-perishable.

✦ American Airlines' air mail volume totaled 39,087,487 pounds for the first eleven months of 1943, an 83.5 percent gain over the 1942 period, according to John A. Keith, western cargo traffic superintendent. November, 1943, air mail volume was 3,274,454 pounds. The five-year air mail express totaled 10,087,095 pounds, or 77.1 percent greater than in the 1943 period.

Memo

for Post-War
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Airline Stocks Chalk Up Gains In '43 as Aircrafts Lose Ground

Final prices show continued advances by all air transport shares while equities in plane manufacturing firms decline further.

By ROGER WILCO

Airline investors did well to retain their equities during 1943. Aircraft equity holders, however, continued to lose it on the chin throughout the year. Final 1943 market results show continued gains by all air transport shares, while the aircrafts were being marked down. The table shows the individual market results of the major aviation companies—both air transport and manufacturing.

Net Changes and 1943 Market Ranges
Major Aviation Companies
(Prices of dollars per share)

Airline	Start	End	Low	High	Change
American	1942	1943	1942	1943	1943
Continental	1942	1943	1942	1943	1943
Eastern	1942	1943	1942	1943	1943
Northwest	1942	1943	1942	1943	1943
Transcontinental	1942	1943	1942	1943	1943
United	1942	1943	1942	1943	1943
Western	1942	1943	1942	1943	1943
Alouette	1942	1943	1942	1943	1943

Market quotations furnished by the New York Stock Exchange and the American Stock Exchange.

It can be seen that each of the airlines shown recorded increases for 1943. Net gains per share range from a minimum of \$1.50 for Northwest to a maximum of \$6 for Pan American. In percentage, however, the best results were shown by Penn-Central, which finished the year about 26 percent to the good for its holder. While American was about \$4.50 per share for the year, the gain was but 8 percent and the lowest for the group.

Record for 1943—Per greater gains were made by the airline shares. American, for instance, these equities were marked up from a minimum of \$3.75 a share for Penn-Central to a maximum of \$11.625 a share for Pan American. Furthermore, these shares were even more positively price-percentage-wise, as they started from much lower levels.

A study of the 1943 price ranges for the airlines reveals that, in every instance, losses were made, penetrating the levels existing Jan. 1, 1943. These declines, however, were all well margin. On the other hand, the high marks established (generally around mid-year) are far removed from current levels. In other words, much of the enthusiasm shown during 1943 has since evaporated. For the most part, wide ranges continue to prevail for airline securities. For example, Pan American (the extreme case) fluctuated about 100 percent when it alarmingly swung between \$2.50 and \$24.

Price Deficit—It is also a safe surmise that airline equities are finding it increasingly difficult to continue the same pace of price appreciation they enjoyed in recent years.

The depressing market performance of the aircrafts had been noted at every turn. The accompanying table, therefore, will not disclose any startling developments insofar as they may relate to aircraft share values. The record, nevertheless, remains an interesting one and due to favorable developments may be reversed by the year's closing. With the exception of United Aircraft, all aircraft builder equities show net losses for the year. But these declines, for the most part, are limited and are as longer of the wide scope that recorded during 1942. For example, Percutaneous, the aircrafts which declined in market value during 1943, lost between 20 to 35 percent.

United Flashes in Black—United Aircraft showed a net profit of \$1.50 a share for the year and was the only major aircraft company to finish in the plus column. The stability of operations, generally accredited to this company, is responsible for this market action.

Almost every aircraft equity pre-

sented in the table shows a range of about 100 percent in individual fluctuations during 1943. This is merely a reflection of the erratic position of the industry in the minds of the investing public. It is interesting that at the high mark for each of the companies, excellent opportunities existed to sell aircraft shares at a substantial profit—not only on shares purchased early in the year but in previous periods as well. For example, a share of \$10.50 per share in 1943 for Douglas would have more than made up the \$10.25 net loss experienced by the stock during 1942.

It is likely that, as long as uncertainties prevail for the aircrafts and sometimes nervous market action may be anticipated. This should be the general pattern for the immediate future and it is during such periods of indecision that opportunities for large profits are likely to exist.

Chambers Heads Underwriters Group

Reed M. Chambers, vice-president of United States Aviation Underwriters, Inc., since its inception, has become president, succeeding David C. Beebe, now chairman.

Albert J. Smith, assistant treasurer, has been named vice-president and financial manager, and Richard S. Anderson, assistant secretary, is now vice-president and chief underwriter.

In the new executive line-up, Chambers returns to his old company, after a leave of absence to work with Defense Services Corp. and Rubber Reserve Corp.

Aircraft Stocks Seen As Overdeflated

A cheerful note is expressed for aircraft equities by a leading statistical service. This appraisal is counter to that taken by virtually every other investment advisory service in the country.

United Business Service, in a current analysis, reiterates its view that aircraft equities are overdeflated. This source, however, concedes that it was premature in advising purchases in this group some months ago.

Pessimistic Future Noted—The much-reversed pessimistic future generally accorded the aircraft industry is also noted by United Bus-

ness Service. However, optimism is expressed in the hope that Washington will properly recognize the importance of maintaining airplane producing facilities second to none in the world.

As a consequence, however, favorable action is looked for in the matter of both negotiation and contract termination procedures.

It is anticipated that clarification of some of the major uncertainties should make for better action on the part of aircraft shares. This service believes that, of the companies in its supervised list, United Aircraft is best fortified with working capital and appears best situated to weather less positive competition.

Strong Position—"Glean L. Martin has working capital equivalent to over \$11 per share—the approximately present price of its stock. Being his over 18 a share of working capital, and the stock is quoted only moderately above this figure."

United Business Service concludes its analysis with the opinion that "the (aircraft) group is close to the bottom of its four-year downturn. Early settlement of questions now under consideration in Washington should result in higher prices for these stocks."

Investment advisory services differ radically as to the outlook facing the aircraft builders—the general view being a pessimistic one. All are on record, however, and the market will, in due time, prove which prophets will remain with honor.

H W

Financial Reports

Beech Aircraft Corp. in its report for the fiscal year ended Sept. 30, 1943, reveals that after negotiated refunds and provision for additional refunds for the last fiscal year totaling \$28,024,455, sales amounted to \$97,843,848. Sales for the previous fiscal year were \$56,562,952. After all charges, including provision for federal income and excess profits taxes, the company reported net income of \$4,031,948, or \$10.96 a common share. In the previous fiscal year, final net income after negotiation refunds settled last September, amounted to \$1,502,930, or \$4.50 a share.

Regarding the provision for refund of government contracts for the latest fiscal year amounting to \$29,524,455, the report points out that this figure represents the maximum claim of a full refund, but that no agreement had been reached with the Price Adjustment Board.

All Associates, Inc., reports for the year ended Sept. 30, 1943, net income of \$1,353,351, subject to renegotiation, equal to \$6.42 a share on 134,956 common, after all charges, including provision for federal income and excess profits taxes of \$2,651,289. This compares with \$445,401, or \$3.32 a share, for the previous fiscal year, when \$754,560 was set aside for taxes. Company reported net sales over to \$28,495,375 from \$14,500,000 for last year ended Sept. 30, 1942.



BUILT WRIGHTS FIRST ENGINE:

Los Angeles' celebration of Kitty Hawk Day was flavored by the presence of a Cherokee of Conqueror lineages of Charles E. Taylor (center), builder of the engine which powered the first Wright airplane into the sky. With Taylor are Jack Northrop (left), president of Northrop Aircraft, Inc., and Leslie Newell, editor of Aviation, who was principal speaker.

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PERSONNEL

Major Charles G. Brown, Jr., has become assistant to Lee H. Smith, general manager of the Fairchild Aircraft plant in Burlington, N. C. A veteran of two World Wars, Maj. Brown has recently been put on inactive status for medical reasons. In World War I, he was with the LePage Rea-

W. A. Patterson, president of United Air Lines, has been elected a member of the board of trustees of Northwester University, according to an announcement by Franklin B. Hooper, president.

J. W. Brown and Sherris Morton have been appointed chief pilot and senior pilot, respectively, of the West Coast military air line operated by South-west Airways. They helped pioneer the air line, which provides direct service to military depots, a year ago.

Nike-Regiment-Peod Co. directors elected Richard W. Baalrud secretary and Ernest J. Mouton assistant secretary at a meeting in West Berkeley recently. Clarence B. Bart, chairman, the announced the election of three new directors, Emmons H. Gilson and Nelson E. Chandler, both of Chandler River Corp. of South Meriden, Conn., and John B. Ryan, of the Hartford-Connecticut Trust Co.

T. P. Vass, who went to the Lorraine division of Consolidated Values about three months ago as acting director of Industrial Relations, has been appointed chief of Industrial Relations. Bud Auker has joined Vass's staff.

drille, before America entered the war. He later joined the Navy as an ensign and rose to lieutenant (CJ). His rating included that of military post and instructor in aerial gunnery and bombing. In World War II, he was commissioned a captain in the Army Air Corps and went on active duty Aug. 7, 1945. He worked as special liaison officer on the Peeping Command and later was transferred at his request to the Technical Command. He flew to England in September, 1945, attached to the 10th Bomb Group. That year he was promoted to Major. He holds the Distinguished Cross and French commendations. Between the two wars, Maj. Russell was connected with the textile industry, connected with organization, production and distribution.

G. L. Rowe, Jr., has been granted a leave of absence from the Social Security Board to serve Fairchild Engine & Airplane Co. as supervisor of employee services for the duration of the war, plus six months. In his new job, Rowe will be working directly with Labor-Management Committees. Before going to the Social Security Board, he was with Federal Housing Administration for three years. He is a member of the bar in both New York and Maryland and has practiced law in New York.



Lt. Col. Harold B. Johnston has been transferred to Wright Field as public relations officer for the Materiel Command, AAF, after holding a similar post with the AAF central Technical Training Command at St. Louis. A native of Sidney Ohio, he has been active in Army public relations work intermittently since 1923, and served in the Navy during the World War. He is also a former Malayan newspaper man and fiction writer. As chief of the command's public relations section, he heads public relations work in the various procurement districts and sub-bases of the command, as well as the public rela-

tions work for the experimental center staff.

A. W. Hurdick, industrial relations director of Kellogg Aircraft Corp. for the past year, has resigned to become personnel director of the Parrel, Birmingham Co., with plants in Arizona, Guam, and Seattle, N. Y. He will be elevated at the latter plant and, besides personnel work will introduce and supervise an industrial relations division. He succeeded at Kellogg by Robert Riddle, recently made assistant to Hurdick.

Appointment of Helen L. Howard as divisional comptroller for Texas operations has been announced by North American Aviation, Inc., simultaneously with the company's conversion from stock-hold-ers to stock price the company's new contract in Plant 3, Dallas. Conversion of contract from and growth of Dallas production added to the financial responsibilities of the new division. In an extent that appointment of comptroller proved desirable, a bond spokesman said.

L. G. Boring (photo), who began his aviation career as a mechanic working the C. Pfeiffer Design Engineering Co. in Hartford, Conn., has been appointed executive assistant to G. E. Boring, factory manager. Boring previously held new job with Consolidated, Wilma not only set up curricula for company-wide training programs, but will also work with the Denver Public Schools system, setting up aviation training programs.

Transfer of Reg. Gen. Louis V. Berry, Jr., to Chief of Staff at Air Service Command, with headquarters at Patterson Field, near Dayton, from his former post as Commanding General of the San Bernardino (Skill) Air Service Command, has been announced by Maj. Gen. Walter H. Frank, AEC commanding general. Succeeding Gen. Berry is Col. James G. Taylor, former chief of the AEC headquarters control division. Col. Ward Wadcock replaces Col. Taylor in the control division. Gen. Berry has been in Army aviation since 1917, and served in France in the World War.

Mrs. Mary Blakely of San Diego, a former seamstress and dressmaker, now at the Naval Air Station in San Diego, has designed a device that saves more than 3,000 man-hours a year in repairing delicate aircraft instruments. Her device, originated after seven months at the Air Station, is a tool for righting the balance of rotors of the instrument which shows a pilot whether or not his plane is in level flight. She has received an award of \$100, second largest sum to be given at the San Diego Air Station.



One of the youngest women in the air transportation industry to hold such a job is Agnes Anderson Carr, office manager of United Air Lines' Los Angeles office, which requires also management of UAL's Hollywood and Long Beach offices. Mrs. Anderson succeeded Irving Maxwell (photo), recently retired, who at the age of 23 was reportedly the youngest air line office manager in the country.

Donald E. Wilson was appointed supervisor of training for all trainees of Continental Air Lines. He was formerly chief executive officer of Continental's Air Transport Command ground school and before that with Mountain States Aviation in charge of the ground school and CPT training programs. In addition to duties as manager of Dayton Field, Dayton. He learned to fly about four and a half years ago and has over 675 hours to his credit. In his new job with Continental, Wilson not only set up curricula for company-wide training programs, but will also work with the Denver Public Schools system, setting up aviation training programs.

Dues C. Smith has joined the executive staff of Fairchild Engine & Airplane Corp. in charge of development activities. A veteran pilot, explorer and aviator, Smith has been director of transport for the airplane division of Curtiss-Wright.



Corp. for the past several years, and before that was manager of Curtiss' St. Louis airplane division.

Smith began his aviation career in World War I as a pilot and flying instructor. After the war, he spent some time barnstorming, and then joined the current service in the Post Office. He was one of the pioneers in transcontinental flight, developing instruments, night and radio flying. When Curtiss-Wright was set up to private companies, he joined the NAT which later consolidated with Boeing to become United Air Lines. Smith went with Alexander Bell on his first expedition in the Antarctic and was awarded the Congressional Gold Medal for his services. After his return, he served with American Airlines. He also holds the Distinguished Flying Cross and was awarded the Harmon Trophy in 1934. He and his associates were awarded the DeWitt News Trophy and the Collier Trophy for their pioneering in aerial navigation. He is a member of Explorers Club and Quest Horizon.

R. L. Ferry and Richard F. Bergman have been elected vice-presidents of the Link-Bell Co. Ferry, who was president and general manager of the Link-Bell Ordnance Co., has been with the company since 1914, and has been concerned chiefly with production and personnel. Bergman joined the company in 1924, through purchase of Howe Chase Co., and has



been chief engineer for Link-Bell for a number of years. Concurrently John E. Morse, vice president assigned to Reg. Gen. G. M. Wells, War Dept., Washington, has been appointed manager of Link-Bell Ordnance Co.

Louise B. Kiderman recently joined Kellogg Aircraft as assistant to H. H. Powell, chief engineer. He has been assistant chief engineer for the past five years at the Kellogg Aircraft Corp., and before that was research engineer for Edward G. Budd Manufacturing Co., where he was in developing stainless steel for use in aircraft construction. He previously has also been with Brewster Aeronautical Corp. and with Grumman Aircraft Corp. He is a graduate of New York University, holds a Master of Science degree from the Gothenburg School of Aeronautical Engineering at NYU, and holds a diploma in naval architecture and naval engineering from the Webb Institute, New York.



LOCKHEED CHRISTMAS PARTY IN IRELAND:

About 4,000 American workers of Lockheed Overseas Corp. gave a series of Christmas parties for more than 3,000 children in Northern Ireland. Prime Minister Sir Basil Brooke of Northern Ireland attended one of the parties with his cabinet. This photo shows top management from scrap lumber, made by Lockheed workers. Each man also contributed a half crown and his own party station for three weeks.

Mr. Wright Looks Ahead

AVIATION NEWS is proud to present in this issue Mr. T. P. Wright's own account of the aircraft production story, both in retrospect and forecast. It speaks for itself. Any hint of his own accomplishments in coordinating and planning is raising from Mr. Wright's report, however. Most top industry officials know how much he has done to bring order out of chaos. Too few other Americans do.

T. P. Wright is an exceptionally able engineer and one of the few scholars of aircraft production in this country has. Of equal importance in Washington, he has the ability to get along with people. Without offending the civilians of Washington, he has managed to get along beautifully with the military. His idea was to get out more planes. Not to question who ran what.

It was about 1940 that Ted Wright wrote in *Aviation* magazine that airpower could win the war and that it would be primarily British and French airpower plus American production. France fell and some of our best known aviation spokesmen, including Lindbergh, and Britain was beaten. Like Lindbergh and Rickenbacker, Mr. Wright had

seen the German aircraft plant before the war broke.

But his ability to work with figures and a slide rule—his careful analysis of German and British floor area, manpower, and other factors—brought no words of doom. The autumn of 1940 proved Wright was correct and that others were wrong. The RAF beat the Luftwaffe once it got it to fight in the air and not just as an attachment to a tank corps.

In another article he maintained his thesis of victory for Allied Air Power and prepared charts showing what the U. S. could do in 1941 and 1942 if we acted fast. We did. Production indeed went up just about following the mathematical formulae of possible floor space and possible manpower on which his estimates were calculated.

And to clinch his uncanny ability, we repeat the story told to us, and we believe it. Last January someone asked T. P. Wright what his private guess was on 1943 aircraft production. Wright said he'd guess about 35,000. The final figure Mr. Wright gives in his article today—35,000.

A Precedent for Industry

ANNOUNCEMENT that the Personal Aircraft Department of the Aeronautical Chamber of Commerce has already emerged from promotional and organizational stages and has settled down to work is the single bright spot in the Chamber picture.

Selection was unanimous of John E. P. Morgan as manager of the department, and of Joseph T. Geating, Jr., and William Meers as chairman and vice-chairman of the Chamber's Personal Aircraft Committee. The appointments were unanimous in an industry which is seldom unanimous in anything but its wish future policy. This is a singular compliment to all three men. It reflects the confidence

they have won as a result of intelligent discussion and planning in recent months.

Fortunately for personal aviation, the light plane manufacturers—even though well loaded with war contracts—have the vision, ability and the will to unite for the future. Their big brothers, with vast stakes, still dangle over reconstructing a single, strong trade association with authority to speak for the entire industry. There are unpleasant rumors gathering momentum that there will be no revived Chamber as long as the aircraft councils are flourishing, but AVIATION NEWS does not believe there is any basis for them.

A Remarkable Document

DESPITE THE PAPER SHORTAGE the U. S. government is still printing scores of pamphlets and official documents, few of them of interest to the public.

If our Government Printing Office displayed the same spirit of public service as the British Stationery Office it would print a cheap edition of Gen. Arnold's great report to the Secretary of War and would distribute it throughout the country for sale to the public at hardly more than cost. The report should be read by every citizen. Fortunately, however, the nation's newspapers are lavishing much

space on the document, and some are running it as a series of articles.

The reporting in itself is a masterful presentation of the subject—building the greatest Air Force of all time and waging the world's first air war. It comes at the threshold of a new and crucial stage in which air power will be told it must outdo even its recent remarkable performances. The report in itself is important, but its effect on political air policy in the next six months will be far greater than most government officials now realize.

ROBERT H. WOOD

"Cat" landing on AEROLS*

Affectionately known as the "Cat," Consolidated Vultee's amphibian airplane, which is named the Catalina, is in the news almost constantly on both our eastern and western battle fronts.

More than an abbreviation, "Cat" aptly suggests this plane's easy grace in landing. The Catalina lands with the legendary surefootedness of the cat because it is equipped with Aerols.

Aerols are an established advancement in aircraft safety and comfort. To cushion landing shock, Aerols are used not only on Catalinas, but on most types and sizes of American aircraft.

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Also manufacturing of Class pneumatic tools for the aircraft and general industries, Class shock absorbers, Class shock absorbers for trucks and buses and Cleveland's new drills for boring and reamers work.



AEROLS*

*THE SHOCK ABSORBERS SHOTS ON AN AIRPLANE'S LANDING GEAR. THE NAME IS DERIVED FROM THE WORDS "AIR" AND "ROLL" THE FLUIDS USED TO CUSHION THE LANDING SHOCK.



Tryout with Tracers

Not all laboratories are housed in buildings. This lonely ravine, for example, occasionally is used as a laboratory, when G-E engineers want to test electric equipment for aircraft turrets under actual firing conditions. Here is one of the famous Martin turrets going through its paces while engineers check the performance of the G-E turret-control system.



**PRECISION PRODUCTS
AND
ENGINEERED SYSTEMS
FOR AIRCRAFT**

Today, a considerable portion of our vast research and engineering facilities is at work on new products and systems for aircraft. Soon, many new G-E devices will take their places in the fight for freedom alongside their well-known predecessors—turbo-superchargers, Martin turret controls, aircraft transformers, capacitors, relays, motors, control, etc.

Whether you fly planes or build them, you can depend on the products that carry the G-E monogram. They are expertly engineered and precisely built, to give long life and reliable operation under severe combat conditions on every fighting front. *General Electric Co., Schenectady, New York.*

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